THE POLAR TIMES

10/38

The Polar Times

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No. 7. OCTOBER 1938.

American Polar Society Names Admiral Byrd an Honorary Member

With the unanimous vote of the executive board of American Polar Society and the approval of the recipient, the scroll of honorary membership in the American Polar Society was presented to Rear Admiral Richard E. Byrd on his 50th birthday, Oct. 25, at his home in Boston.

The ceremony followed the precedent adopted when the scroll of honorary membership was presented to General David L. Brainard on his 80th birthday, Dec. 21, 1936, in Washington, D. C.

The presentation to Admiral Byrd was only one part of a triple event that took place on Admiral Byrd's birthday. About thirty New England members of the American Polar Society and members of the Byrd Arctic and Antarctic expeditions met at Admiral Byrd's home at 5:30 o'clock. Mrs. Byrd and the Admiral greeted the group informally.

Norman Vaughan of the first Byrd Antarctic Expedition and Stuart Paine of the second Byrd Antarctic Expedition read enthusiastic letters from expedition members who could not attend but who wanted to send their greetings to the Admiral.

Then, Dr. W. Elmer Ekblaw, Professor of Geography at Clark University and a member of the four-year Crocker Land Arctic Expedition, presented the Society's scroll on behalf of its officers and members. The illuminated scroll was designed by Russell J. Walrath, a vice president of the Society and chief cartographer of The New York Times.

Dr. Ekblaw prefaced the presentation by extolling Admiral Byrd's polar achievements and expressed the high admiration in which he is held not only by members of the Society but the entire world.

Expressing his thanks, Admiral Byrd spoke of the honor which he felt was due to his men. He also had words of praise for Lincoln Ellsworth who had recently set sail from Cape Town, South Africa, in his ship, the "Wyatt Earp", for Enderby Land where he hopes to start his flight across the Antarctic Continent to Little America. Admiral Byrd then proposed that a radiogram of greetings and best wishes be sent to Lincoln Ellsworth. (This action was duly carried out and the Society is in receipt of a pleasant "thank you" radiogram from Mr. Ellsworth).

Admiral Byrd also spoke of exploration plans that he hopes to carry out in the not too distant future and of new tools with which he expects to tackle more of the tantalizing problems of the Antarctic.

Among the explorers present was Lieut. Commander Isaac Schlossbach, U.S.N., Retired, of the second Byrd Antarctic Expedition and second in command of the MacGregor Expedition to Greenland. At the request of Admiral Byrd, Commander Schlossbach recounted the story of the journey on the three-masted auxiliary schooner "General A. W. Greely" to Greenland and of his successful flights over the area where Rear Admiral Robert E. Peary thought he saw land which he named Crocker Land. Commander Schlossbach confirmed the reports of other explorers that Crocker Land was non-existent.

He flew at a considerable elevation, well beyond the supposed location, without sighting any landfalls. He gave details of the customary trials and tribulations of an expedition weathering the winter night, of mechanical difficulties in repairing the airplanes and refueling on shifting sea ice, and lastly of the threat to the expedition's ship in the severe storm encountered on the return to New York.

Following Commander Schlossbach's talk Norman Vaughan presented to Admiral Byrd a birthday gift from the Byrd expedition members. The gift was a gold wrist watch, suitably engraved.

With the assurance that Admiral and Mrs. Byrd would join the group later, the party retired to a nearby Norwegian restaurant where smorgesbord and a Scandinavian-style dinner was served

Admiral Richard E. Byrd

At the close of the dinner, Paul A. Siple, president of the American Polar Society, called the first New England meeting of the Society to order. After general remarks concerning the growth of the Society, the president outlined its plans and ambitions.

Carl O. Petersen of New York City, a vice president of the Society and veteran of four polar expeditions, gave a resumé of recent Scandinavian polar activity.

George Grimminger of the Boston office of the U.S. Weather Bureau, who was assistant meteorologist of the second Byrd Antarctic Expedition, discussed the climate of the Antarctic

Among the polar specialists at the meeting was Malcom Hanson, head of the radio department of the first Byrd Antarctic Expedition, a leading experimental scientist in the field of radio engineering, and until recently attached to that division of the United States Navy.

Mr. Hanson reviewed the recent advances in radio that will affect future polar expeditions. He described improved radio apparatus that is likely to reduce the weight factor and make voice-transmission equipment to be carried as sledging equipment. However, he still felt that code signals were the most reliable under general conditions.

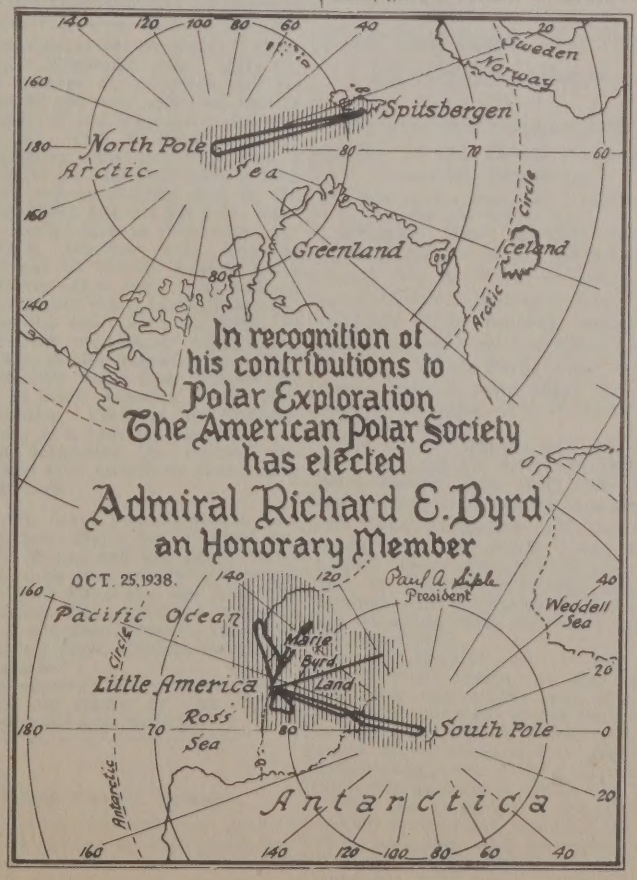
He described also practical equipment that has been developed for liberating free balloons that radio automatic signals of upper air temperatures, pressures and possibly wind direction and velocities. Similar robot transmitters placed at well-selected stations in the Antarctic and powered by wind generators may bring in reality a network of permanent weather stations in the polar regions that need not be manned.

The final talk was given by Dr. Ekblaw who praised the spirit of the younger explorers and expressed the hope that the American Polar Society may develop into a group that can take a lead in American exploration. Dr. Ekblaw lamented the many ill-prepared expeditions that have set out and met with disaster. He also expressed the hope that the Society may eventually aid in reviewing the personnel and equipment of all expeditions that set out and approve or disapprove their preparations and programs.

He emphasized in his conclusion that upon the return of these expeditions it was important that the government or some group like the American Polar Society assist the explorers in completing their reports, so that the good material will not remain unpublished, as has so often happened.

The formal meeting was concluded with a resolution that a second meeting of New England members of the Society be held in Boston on the tenth anniversary of Admiral Byrd's flight over the South Pole, Nov. 29, 1939. Upon the arrival of Mrs. Byrd and the Admiral the meeting became a reunion of Byrd expedition men and their wives.

Among those present at one or both functions were Stevenson Corey, who was in charge of arranging the dinner meeting; Captain Verleger and Commander Queen of the "Jacob Ruppert"; Edward Goodale, a committee member with Vaughan, Paine and Siple in charge of the reunion; Sverre Strom, John McNamara, Granville Lindley, Stanley Pierce, W. P. Gaynor, Robert Fowler and W. H. Lowd, all members of either the first or second Byrd Antarctic Expeditions.



ELLSWORTH TELLS EXPEDITION'S PLANS

The Wyatt Earp Already on Start for Southern Seas

Final preparations and plans for his fourth expedition to the South Polar regions are described here by the distinguished explorer whose epochal flight across Antarctica two years ago made polar history.

By LINCOLN ELLSWORTH

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The 1938 Ellsworth Antarctic expedition is, like its predecessor, a voyage of discovery. We are going to the Enderby Quadrant, an almost entirely unknown area of 750,000 square miles on the African side of the continent. Only the coast line of this area has been seen by man. No one has gone deeper than a mile or two inland.

Discoveries will be made by airplane. This year I am taking with me a Northrop delta cabin monoplane. All but two seats have been removed and the space filled with gasoline tanks to step up the cruising range to 2,000 miles. This will enable me, if conditions are right, to make a flight across the whole continent, including the South Pole, to Little America, where I plan to wait for the Wyatt Earp to come around and pick me up.

The plane is equipped for all kinds of surfaces with skis, wheels and pontoons. Its motor is a 750-horsepower Wright cyclone. It has a two-way wireless with which it can maintain contact with the Wyatt Earp.

The pilot will be J. H. Lymburner of Dunnkville, Que. He is a Royal Air Force reserve pilot as well as a commercial transport flier and is experienced in flying over frozen territory.

Mr. Lymburner will not be new to the Antarctic. He was emergency pilot and second engineer on my previous expedition. He took over the relief plane from Dick Merrill and flew it in search of Captain Herbert Hollick-Kenyon and myself when we were believed lost. He has eight years' experience as a radio engineer and transport pilot.

This time, T. R. Trerice of St. Johns, Que., will be flight engineer and emergency pilot. He has six years' experience as transport pilot, with operations mainly in Northern Quebec.

The captain of the Wyatt Earp will be Londer Johansen, 38. In the Antarctic he has been, successively, sailor, gunner and captain of a whale catcher.

About the last week in October we shall head for Ingrid Christensen coast, about 500 miles east of Cape Ann, where the Antarctic was first sighted in 1839.

It's a treacherous coast we shall face there, practically uncharted and littered with hundreds of small islands and reefs. Once we get through the pack ice and to land, the work of flying and discovery begins.

Our flights will be made chiefly to determine whether the polar plateau extends far toward Africa and whether the mountains of Victoria Land run right across the magnetic pole to the opposite side of the continent.

There will be no new territory added to the United States this time. Although no man has ever seen what we shall see, Australia already claims it by virtue of a landing on the coast.

"After approximately 150 years of exploration, ever since Cook circumnavigated the continent," Commander Ellsworth said July 26, "the interior of Antartica still remains 90 per cent unknown and 25 per cent of the coastline is still unexplored. Call it restlessness or curiosity or what you will, then, I intend to go back and have a look at the sole remaining part of the world which has not yet been seen.

"I should like to determine, for instance, whether the Enderby Quadrant of 750,000 square miles resembles other regions of Antarctica, whether the land contains anything like the 1,000-mile range of 12,000-foot mountains which Hollick-Kenyon and I saw in the course of our 1935 flight from Dundee Island to Little America on the Bay of Whales. Perhaps the Enderby interior is a vast ice plateau.

"To determine the correct answers to such questions, then, I am going back.

We will carry two airplanes, one a Northrup Delta for extended Antarctic flying and another a small plane to be used as a ferry between the Wyatt Earp and the Antarctic mainland. The expedition will consist of nineteen persons, including the ship's crew, airplane mechanics and pilots."

The explorer said that he did not expect to return to the United States until next Spring.

Times Wide World

The Wyatt Earp, Lincoln Ellsworth's base ship for expedition to Enderby Land.

OUR COVER DESIGN

The cover page of this issue is from an etching by Paul Berdanier, available through the courtesy of Kennedy & Co., New York.

ELLSWORTH'S VESSEL SAILS FOR ANTARCTIC

Wyatt Earp Leaves Cape Town With Explorer Aboard

By LINCOLN ELLSWORTH

Leader of the Fourth Ellsworth Antarctic Expedition

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ABOARD THE MOTOR SHIP WYATT EARP, Bound for the Antarctic, Oct. 29.—With her decks almost covered with drums of fuel oil and the little Aeronca scouting plane fastened to the hatch, my ship, the Wyatt Earp, sailed from Cape Town at noon today Greenwich Mean Time [7 A. M. Eastern standard time].

The Crozet Islands will be the first land sighted some two weeks after leaving Cape Town, but unless the seas and weather are clear and calm a landing will not be made until we reach Kerguelen Island, where the deckload of fuel will be pumped into the ship's bunkers and the decks cleared for the encounter with the heavy seas further south.

It will probably be at least a month more before the ship can force her way to the edge of the Antarctic continent at the Enderby Land sector and to where I will carry out by airplane a geographical reconnaisance of the side of the Antarctic opposite the Ross sea.

With the exception of a sketchy outline of the coast, this area is entirely unknown, and the results of this, my fourth expedition to the Antarctic, will prove whether the eastern half of the continent is a continuation of the high plateau known to exist at the South Pole or whether it is indented with valleys or serrated with mountain peaks, as is the west side of the Ross Sea.

The area to be visited this year is the last great land mass in the world to be reconnoitred.

Tossed by the angry, lumpy seas where the strong Agulhas current meets the high westerly winds off the Cape of Good Hope, the Wyatt Earp in her first few hours out of Cape Town pitched and rolled with the nastiest corkscrewy motion I have ever experienced.

By Sunday noon, with all sails set, the vessel settled down to her normal lively movements and the seas flattened out. Nevertheless, several of the crew were slightly under the weather.

After nearly two years ashore, I have lost my sea legs and must now again accustom myself to the straddling motion needed to move about the deck and be on the alert, as all must be on the Wyatt Earp, to steady myself with a hand on the rail or any convenient timber.

Even with the greatest caution on the first day out, one can seldom avoid accidents. I smashed my fingers badly when the cabin door slammed on my left hand during a heavy roll.

Our crew numbers nineteen members on this fourth Antarctic expedition. Some of them are old shipmates of six years' standing. Captain Johansen and Wireless Officer Seid are new to the staff, but Chief Officer Liavaag and Chief Steward Dahl have been with me for several years. Second Engineer Sperre is for the third time a member of the crew.

Pilot J. H. Lymburner was with the ship and prepared the airplane Polar Star when Air Commodore Hollick-Kenyon and I left on our transatlantic flight from Dundee Island to the Ross Sea in 1935. It will be Engineer-Pilot Trerice's first visit to the Antarctic.

Sir Hubert Wilkins, of course, has been with me in charge of arrangements on board the Wyatt Earp on each of my Antarctic expeditions.

We passed from sight of land early Sunday. The next land we will see is the snow-covered peaks of Crozet Island.

France Claims Lands In South Pole Region

Paris Decree Prompted by U. S. Action on Islands

PARIS, April 18 (UP).—Prompted by British and American occupation of isolated islands in the Pacific Ocean which are of value as future air bases, the French government today published a decree establishing a claim on all lands south of the sixtieth degree of latitude.

The claim extends from the sixtieth degree to the south pole and between the 136th and 142d east parallels. The region includes Adelie Land and all lands between the rocky mass at the edge of the great ice barrier and the pole, discovered and undiscovered. Adelie Land was claimed for France by d'Urville in 1840. It lies immediately west of the Ross Sea, which was used by Commander Richard E. Byrd, Lincoln Ellsworth and other explorers as bases for exploring the pole.

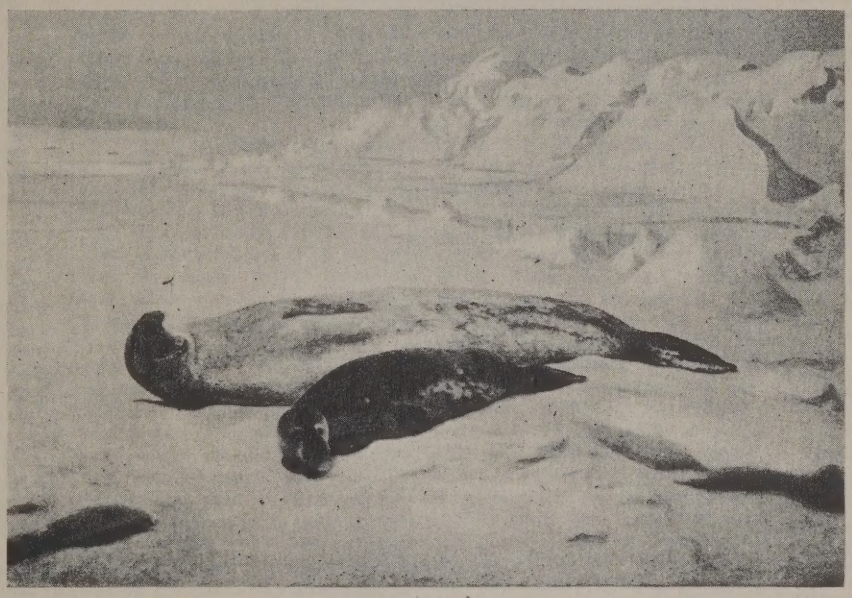
The French hope that the decree will prevent any other polar expeditions from claiming land between those two parallels. The claim runs as far west as Wilkes Land and lies straight south of Tasmania and Melbourne.

ANTARCTIC SEALS, COLLECTED BY ADMIRAL BYRD'S EXPEDITION, IN NEW GROUP

By Wilfred H. Osgood
Chief Curator, Department of Zoology

A group of Weddell's seals, just completed at Field Museum, is the second representation of Antarctic life produced in Chicago as a result of the Second Byrd Antarctic Expedition of 1934–35. The first was the group of emperor penguins, described in these pages in December 1936.

Anyone who has seen the motion pictures taken by Admiral Byrd's party must have realized that penguins and seals are the most conspicuous animals to be found in the Antarctic, and in fact almost the only animals. In regions around the North Pole, if not actually at the Pole, there are polar bears, foxes, ermine, hares, musk-oxen, and wild reindeer, as well as various land birds. About the South Pole, on the other hand, there are no land mammals whatever, and no birds unable to swim in the icy seas. This is the case notwithstanding the fact that the Arctic ice-cap has only water directly beneath it, while that of the Antarctic surmounts an extensive solid continent. Obviously the present distribution and the history of the animals have been influenced by the history of the continents and seas surrounding them.



The Antarctic Brought to Chicago

Group of Weddell's seals added to exhibits in Hall of Marine Mammals. It is composed of specimens collected by the second expedition to the Antarctic under the leadership of Rear-Admiral Richard E. Byrd. Animals mounted by Staff Taxidermist C. J. Albrecht; background prepared by Mr. Arthur G. Rueckert.

Although the only mammals of the Antarctic are seals and whales, there are various species of these, and among the seals the one called Weddell's has proved of greatest interest. Extensive additions to knowledge of the life history and habits of this animal have been made by the naturalists of the Byrd expeditions, especially by Messrs. Paul Siple and Alton A. Lindsey.

Weddell's seal is a large species, reaching a length of about nine feet, and a weight of somewhat more than nine hundred pounds. It belongs to the group (Phocidae) known as true seals or hair seals in distinction from the fur seals and sea lions which have greater freedom of movement of the hind limbs. It progresses on land or ice with some difficulty, moving forward by heaving and undulating its bulky body much after the manner of some worms and caterpillars. Nevertheless, it goes inland for long distances, especially during the Antarctic summer when its young are born. At this time the heavy females work their way as much as eight or ten miles from open water, taking advantage of pressure cracks and temporary waterways which they keep open by sawing out newly formed ice with their teeth. Finally they take stations, a few hundred yards apart over a wide area, as indicated in the Museum's group. Each female has one young which stays by her side some three weeks. Then the loosely organized rookery breaks up, the young begin to shift for themselves, and the adults return to the sea. Actual weaning of the young, however, may not take place for six or seven weeks.

In general, the Weddell's seal seems to frequent the land ice and the waters of protected bays more than other species, such as the crab-eating seal, and the leopard seal, which are commonly seen in the moving pack ice. Thus it gets some protection from its chief enemy, the killer whale. This voracious animal is not satisfied to confine itself to its natural element, but when conditions are favorable, it will project itself nearly out of water to snatch an unwary seal lying too near the edge of the ice.

The young, when born, have their eyes open. They are nearly five feet in length, and their weight at this time is about 65 pounds. Although nourished only by the mother's milk, they gain weight at the rate of seven pounds daily. Their first coat is soft and woolly, and dull-colored, but this is soon changed for a fresh, spotted coat of considerable beauty. There is much variation in color—some animals have grayish, and others brownish coats, but all are heavily spotted and blotched with irregular markings. Weddell's seal does not migrate, but remains near the coastline of the Antarctic continent through the winter, although occasionally a few individuals may be carried on floating ice northward as far as New Zealand and southern South America.

The Museum's group was prepared by Staff Taxidermist C. J. Albrecht, with the co-operation of Mr. Arthur G. Rueckert who painted the background. Their combined efforts in solving the unusually difficult problems encountered in merging foreground with background have been conspicuously successful, and the result bids fair to find high rank among groups of this kind. It takes an important place in the Hall of Marine Life (Hall N), where it shares space with the walrus of the Arctic region, the sea elephant and manatee of warmer waters, the sea lions of the California coast, and Pacific harbor seals.

Savants: Antarctica Belongs To U. S. Because of Palmer?

PHILADELPHIA, Pa., April 23—One of the most distinguished gatherings of savants in America paused today during its weighty annual meeting devoted to international politics, boundaries, neutralities, and alliances, to pay tribute to the man who discovered a continent but whom the world has forgotten.

But not because discovery of Antarctica is without international interest was Capt. Nathaniel B. Palmer of Stonington, Conn., forgotten, as William H. Hobbs, Professor Emeritus of the University of Michigan, observed in his report to the American Philosophical Society. "Since we have come to attach importance to coral atolls in the Pacific, desirable as aviation stations, who knows but what someday the United States may see fit to push rightful claims to priority of mainland discoveries in Antarctica?"

Rival to Palmer Land

Rightfully belonging in the select company of continent discoverers like Columbus, Palmer on his 1820 voyage in the tiny 47-foot sloop Hero, cruised along the shores of Antarctica below the South Orkney Islands and drew up the map which after limited private publishing in Hartford, was used as the basis for widespread publication here and abroad. Though proper credit for the discovery was given for a time through labeling the area "Palmer Land," the name soon degenerated into a local place name.

"Today," Professor Hobbs told the assembly, "the land first seen by Palmer is called "Graham Land," because a limited section of its coast was seen from a distance by Capt. John Biscoe, a British sealer in 1832, 12 years after Palmer's discovery."

Substantiating his rediscovering a discoverer, Professor Hobbs exhibited the earliest record of Antarctica, a rare map published in Hartford in September, 1821. Where present maps show "Graham Land" the Hartford map shows "Palmer Land," properly located, well below the sixtieth parallel, with the indentations of the coast line substantially as they appear on maps today.

Tracing down facts regarding Palmer, Professor Hobbs examined the ship's log, in which mention is made of the new land, as well as records at the Customs House in New London showing that the tiny ship actually had sailed below the sixtieth parallel, daring seas that are among the stormiest in the world. He went to Yale and Harvard to examine collection maps there, then visited France and England to search for more details, especially at the British Admiralty. The only printed account of the discovery Professor Hobbs found was an interview in the New London Gazette after Palmer's return.

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THE POLAR TIMES highly recommends "The Polar Record," published January and July by the Scott Polar Research Institute, Cambridge, England.

The American Polar Society was founded Nov. 29, 1934, to band together all persons interested in polar exploration. Membership dues are one dollar a year, which entitles members to receive THE POLAR TIMES twice a year.

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OFF ON WHALING QUEST

Journey of the Ulysses to Antarctic Revives The Glamour of Fictional Moby Dick

Oct. 30

YOUNG men who qualified to carry on the whaling traditions of Nantucket and New Bedford are steaming toward the Antarctic. Their craft is the ultra-modern, reconstructed tanker Ulysses, a 10,780-ton "floating factory" that is a far cry, in size and equipment, from the nineteenth century whalers, the last of which reposes peacefully now on the estate of the late Colonel H. R. Green, eccentric multi-millionaire.

The call, recently, for "able-bodied, robust Americans, unafraid of the Antarctic and work" brought forth the fact that the thrill which seized the venerables of Nantucket is fully as strong today. The sophistication of American youths vanished at the prospect of seeing a modern tale of Moby Dick unreel before their eyes, and there were hundreds of applications to join the Ulysses. Late-comers who are found acceptable are still being dispatched to Curaçao, where they will join the crew. The Ulysses itself, when it left New York a few weeks ago, carried more Americans than have ever before joined a whaling expedition.

The Ulysses completed its maiden voyage successfully last year, catching 1,560 whales in the Antarctic and bringing home 9,000 tons of oil, valued at nearly $1,000,000. This year, sure of its power, it sails to compete from Dec. 8 to the middle of March with the largest number of whaling vessels ever assembled at the farthest tip of the globe. Amid floating bergs, at the rim of the earth, there will gather one factory boat from Panama, nine from Norway, ten from England, five from Germany and four from Japan. Like the Ulysses, each will command, also, from eight to ten chaser boats. The Ulysses killer boats measure 140 feet, about the size of the old-time whaling vessels.

Bigger Catch Expected

Manned by the aristocracy of the fleet, the captains and gunners and picked crew of eight or nine, the killer boats will roam the treacherous seas after their prey while the mammoth crews, numbering upward of 300, on the factory boats keep constantly turning the wheels of the "factory." Encouraged by rising markets for whale-products, the rivalry for favorable spots among the different crews will be intensified, and it is expected that the total catch of 43,135 whales last year will not only be equaled, but increased, this season.

There are strict limitations imposed by the annual International Whaling Conference. Minimum lengths for each type of whale are agreed upon, and it is illegal to shoot any whale under this size..

Strict surveillance is kept on the Ulysses by a government inspector, whose duty is not only to patrol, but to study the habits of the whales. Data regarding the feeding and lengths of whales are secured for the Bureau of Fisheries. Much research, too, is being done to clear up the mystery of the appearance of thousands of whales in the Antarctic.

A few years ago many people were shaking their heads over the fact that whaling appeared to be extinct. The industry declined not only because people stopped filling their lamps with whale oil and women no longer laced themselves into whale-boned armor; it failed because there were no more whales to hunt.

No one knows yet whether the whales which cavort during the Antarctic Summer, gorging on staggering quantities of small crustaceans which abound in the icy seas, are lineal descendants of the whales that used to swim off New Bedford. It is possible the Antarctic tribes, which have been tracked down and caught by the thousands during the past ten years, have always been there but were never before discovered. It is known that whales go north to breed in the Summer, and there they get lean and hungry, and south in the Winter to feast and consume their half-million calories apiece every day. Small arrows shot into the blubber of whales have served as markers to trace their migrations.

None but the most experienced is allowed to do the actual chasing of the whales, so that most of the Americans on the Ulysses signed as officers, mess boys, helpers and crew. They will have the opportunity to see how whaling works and perhaps later on may graduate to the occupations which are at once most exciting, dangerous and lucrative.

The most highly paid of all the crew is the gunner, and he is usually Norwegian. Gunners, it is said, are born, not made. They must be possessed of a kind of cold fury, ignited at the sight of a whale, a relentlessness that can outmatch the brute strength of the sea mammal and which can keep them riveted to the harpoon, their eyes unwavering from the sea for hours.

Their weapon is a gun mounted on a swivel, which can be turned in any direction with a range of fifty yards. When the whale's weakest spot beneath the fin rolls into view the gunner presses his finger against the trigger. The gun fires a cast-iron harpoon weighing 200 pounds and measuring six feet. The point of the harpoon encases a bomb which is ignited by sulphuric acid and explodes three seconds after it enters the whale, killing it instantly. As an added vengeance there are barbs lashed to the harpoon; they are closed while the weapon hurtles through the air, but they open, forming grappling hooks as soon as the deadly spear has sunk into the whale. The whale is inflated with compressed air at once so it will stay afloat. It is then towed to the factory boat, or if there are other whales near by to chase, a flag and electric lamp is fastened to the line and the killer boat resumes its quest.

LARGEST WHALE TAKEN IN SEASON 192 TONS

Total Slaughter Was Valued at $6,500,000 for 5,198 Caught

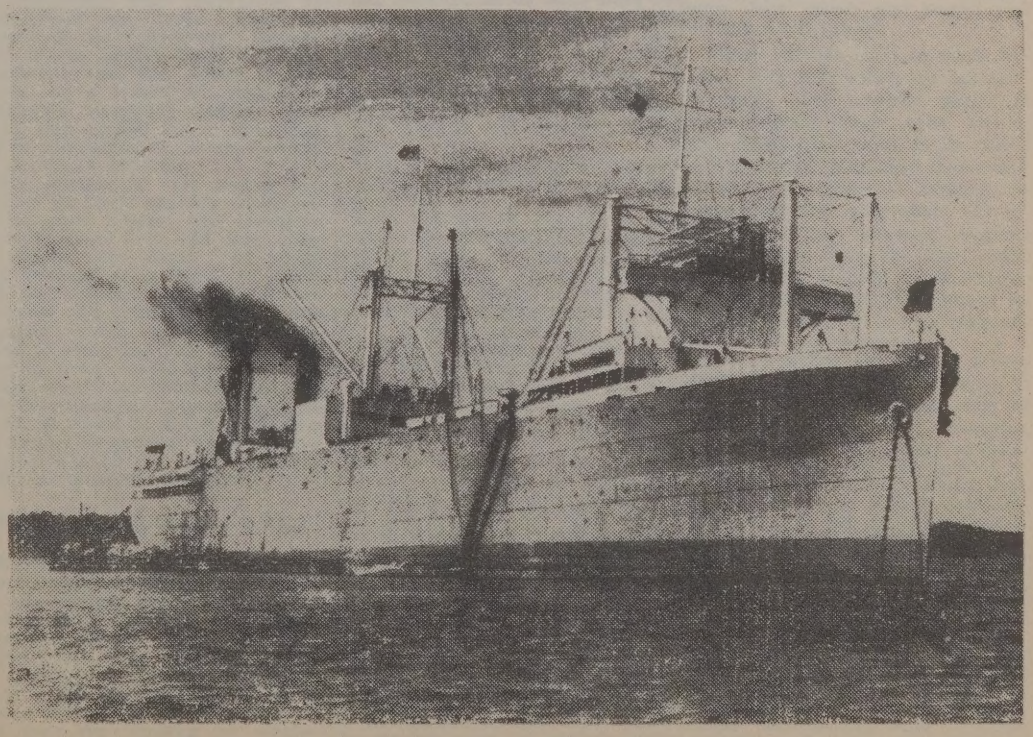
During the Summer of 1937 and the Winter season of 1937-38, 5,198 humpback, finback, sei, sperm and blue whales were taken and processed by whaling companies licensed under the Whaling Treaty Act, according to Frank T. Bell, Commissioner of the United States Bureau of Fisheries, Department of Commerce.

Two land stations located in Alaska operated six killer boats in the Pacific Ocean and Behring Sea in the vicinity of the Aleutian Islands. One factory ship and two killer boats operated in the Pacific Ocean and other waters adjacent to the coast of California. In Sharks Bay, Australia, the Indian Ocean and neighboring waters, two factory ships and fifteen killer boats took about one-third of the total catch by boats flying the flag of the United States. In the Ross Sea in the Antarctic, one factory ship with nine killer boats took and processed over 1,500 whales from December 8, 1937 to March 15, 1938.

The largest whale taken by these expeditions was a blue whale measuring ninety-six feet which was reported to have weighed 192 tons.

The whales taken in Alaskan waters, the Pacific Ocean and other waters adjacent to California, were utilized largely as oil, meal and fresh and frozen meat, and those taken in the Antarctic and Australian waters were processed into oil. Whale oil in the United States in 1937 brought approximately $170 a ton, while in continental Europe the price was reported as $65 a ton.

The value of the catch for 1937 is conservatively estimated as $6,500,000 and fees for whaling licenses yielded $10,250 to the Federal Government.



Ulysses, factory ship of the only American whaling expedition in the Antarctic.

New Regulations Issued For U. S. Whaling Ships

May 23.

New joint regulations governing inspection of vessels of American registry engaged in the whaling industry, pursuant to the whaling treaty act and to give effect to the international agreement for the regulation of whaling, have been issued by the Treasury and Commerce Departments, with the approval of President Roosevelt, it was announced yesterday.

The new regulations supersede joint regulations of October 9, 1936, and the provisions clarify and extend the inspection function exercised by Treasury, customs and Coast Guard officers, with respect to the operation of American whaling vessels. The regulations are designed further to safeguard the revenue from whale-oil imports by closer supervision of whaling operations.

Under the new regulations a Coast Guard officer is required to be aboard whaling vessels during operations as an inspector for the government. The officer is authorized to go aboard any vessel or unit engaged in whaling, to require daily records, with all pertinent data, and to question members of the crews.

The Coast Guard announced yesterday that Lieutenant T. R. Midtlyng has been assigned as inspector on the whaling factory Frango and Lieutenant W. C. Hogan to the whaling vessel Ulysses. Both vessels, of American registry, will operate off the west coast of Australia.

Named for Whaling Conference

WASHINGTON, June 3.—Herschel V. Johnson, counsélor of the American Embassy in London, was appointed today chairman of the United States delegation to the whaling conference which will convene in London June 13 to study the results of the 1937-38 whaling season and consider the modification or extension of the final act of the conference of 1937. Other delegates will be Dr. Remington Kellogg of the Smithsonian Institution and Commander Wilfrid N. Derby of the Coast Guard.

WHALES GET PROTECTION

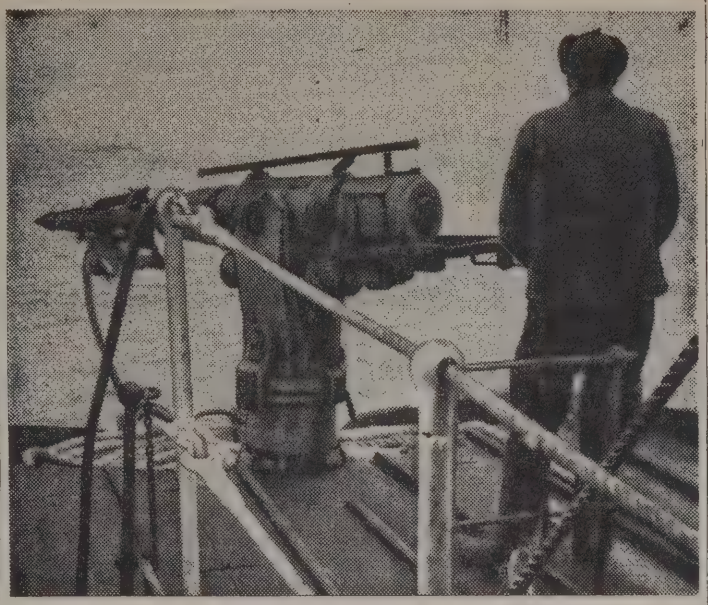
Ban on Pelagic Expeditions Is Extended Under Treaty

LONDON, June 24.—Stricter protection will be given to humpback and baleen whales by a protocol to the international whaling treaty, signed today at the close of the international whaling conference, of which the United States is a member.

The conference agreed to bar taking any humpback whale by pelagic expedition in Antarctic waters. It also established a new sanctuary for baleen whales in the sector of the Antarctic between Graham's Land and Ross Sea and banned pelagic whaling for baleens in Arctic waters.

Japan announced she would pass the necessary laws to work within the agreement.

Another achievement was the definition of a "land station" as one incapable of being moved. Hitherto these stations have been capable of being moved within territorial waters, with a consequent bad effect on the supply of whales.



Western Operating Co.

Gunner with harpoon gun aboard the whaler Ulysses.

WHALES CAN STAND DEPTH

Mammal Immune to Air Pressure Change That Divers Dread

WASHINGTON (Science Service).—Compressed air illness or caisson disease is the chief hazard of workers, such as divers and tunnel excavators, under high air pressure. The condition is caused by the release of bubbles of nitrogen which may form in any part of the body, or block any of the blood vessels. It can take many forms, but the cause is always the same, namely, change from a higher to a lower air pressure. The symptoms may arise from a long dive at a moderate depth or a short dive at a great depth.

It has been assumed hitherto that all mammals were susceptible to compressed air illness. However, Laurie of the "Discovery" Expedition of the British Colonial Office concludes that the whale is immune, as a result of certain remarkable biological studies. The work was carried out in the vicinity of the island of South Georgia in the South Atlantic.

The whales in this region live mainly on lower animals which exist at great depths, and therefore have to make long and deep dives to secure their food. The whale can descend to a depth of about 300 feet, remain there for fifteen minutes and return rapidly to the surface without developing symptoms of compressed air illness. The human diver, under similar conditions, would undoubtedly suffer a critical attack of compressed air illness. It would be necesary for him to ascend by gradual stages over a period of about an hour and forty minutes to assure his safety.

Whaling Agreement in Effect

WASHINGTON, May 17.—The State Department has been notified by the British Embassy that the International Whaling Agreement, signed at London June 8, 1937, has entered into force with the receipt of a sufficient number of ratifications. The agreement provides a closed season for nine months of the year for whaling by whale-catching ships attached to floating factories.

Research Gunners Mark 800 Whales in Antarctic

LONDON, June 11 (UP).—The Royal Research ship William Scoreby has returned after a seven-month voyage to the most desolate seas in the world—the Antarctic Ocean—to mark whales. The ship left last September with a crew of twenty-three, and during the cruise marked 800 whales, making the total in the last four years 3,000.

The whales are marked by firing stainless-steel tubes into them from ordinary 12-bore guns, to facilitate study of their migratory habits.

Weird Chasm Discovered

CAMBRIDGE, Eng., Aug. 23.—Discovery of one of the weirdest places on earth, a chasm more than 300 miles long and about 15 miles wide, hemmed in on both sides by mountains reaching heights of 6000 feet, and filled with ice 3000 feet thick was announced here today by G. C. L. Bertram, a member of the British Graham Land Expedition which returned last Winter after three years in this Antarctic desolation.

It is the first spot on the map to be given the name of the new king, George VI.

King George VI Sound, as described by Mr. Bertram, separates Graham land, in the Antarctic Ocean south of Patagonia, from Alexander I. Island on the west, discovered more than a century ago by a Russian expedition. Up to the present, he said, southern Graham Land has been one of the great unknowns, practically all the information concerning it having been obtained by Sir Hubert Wilkins in his Antarctic flight in 1928. From these observations, it was assumed that it constituted an Antarctic archipelago of several islands.

To the contrary, Mr. Bertram reported, it turns out to be a single narrow peninsula of the Antarctic continent along whose western side runs a continuation of the main chain of the Andes Mountains, and the "archipelago" vanishes from the map.

King George VI Sound, he said, is particularly remarkable because it affords the only known example of an imprisoned ice sheet where the ice has piled up century after century to the great thickness of 3000 feet

WHALE OF A WHALE LIVES IN ANTARCTIC

Scientist Calls It Largest Animal the World Has Ever Known

In the inhospitable seas in the world—in the Antarctic lives the biggest animal the world has ever known, Dr. Dilwyn John told a meeting of the Society for the Preservation of the Fauna of the Empire, of which King George VI is patron.

"There are two big and very similar species of whales in the Antarctic, the Blue Whale and the Fin Whale," he said. "The Blue is the bigger of the two. The largest may be over 100 feet long and weigh 150 tons, which is more than the weight of twenty elephants. The Diplocodus, one of the biggest of extinct animals, was nearly as long as a Blue Whale, but it cannot have been more than a third as heavy.

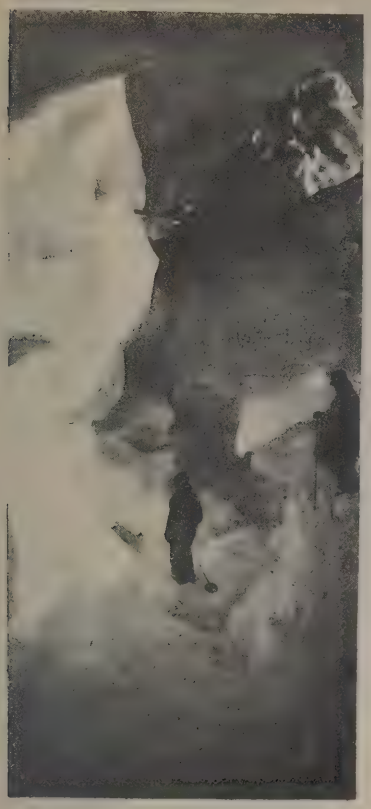
"Blue and Fin Whales begin to breed at the age of two years. They become physically mature, that is they cease to grow, Fins between the ages of six and eight, Blues between eight and ten. The female normally bears one young every two years. They do not live to the great age that, because of their bulk, was formerly supposed; it is difficult to say what age, but it seems likely that a Whale thirty years old would be a very old Whale."

A prawn which is only two inches long when full grown and occurs nowhere else but in the Antarctic is the only food of Blue and Fin Whales. It has the peculiar habit of swarming in dense shoals and it is this which makes it accessible to the Whales in numbers large enough to satisfy them. The Whales swim through the shoals with open mouths, sift the prawns with their baleen and engulf tremendous mouthfuls.

Finner whales mate in early Autumn, and their young are "calved" in May. The prenatal period is only a little longer than man's. The whale baby feeds on its mother's milk from May until December, when it is weaned. Adolescence lasts from then until about the beginning of the following August. Thus, in two years the blue whale passes from infancy to adulthood, although of course it continues to increase in size for a long time after maturity is reached.

This is among the host of whale-facts amassed in many voyages to both of the earth's frozen ends by Professor Johan Hjort, seagoing scientist of the University of Oslo.

Their growth naturally goes on at a tremendous rate. In a single day, during the period of most rapid increase in size, the young whale puts on every day the weight of a full-grown man. A really large finner whale will weigh as much as 1,500 men—real he-men, too, the size of the thick-chested Viking whaler captains who pursue them. Cruising at ten knots, Professor Hjort has calculated, they must put forth an effort equivalent to forty-seven horsepower. The Norse biologist added that he has been on ships pursuing such whales at a speed of fourteen knots and not catching them.



THE APPLICATION OF SEISMIC METHODS IN THE DISCOVERY OF NEW LANDS IN THE ANTARCTIC

By THOMAS C. POULTER

Reprint from March, 1937 ARMOUR ENGINEER AND ALUMNUS

PERHAPS no continental outline has been the subject of more speculation on the part of explorers than has that of Antarctica, and in no section has there been as much known about the surface features and so little known about how to interpret them in terms of what lies below as is the case for that area between the vertical ice wall that stopped Ross in 1841 and the Queen Maud Mountains. More flying has been done over that section and more sledge parties have traversed it than all other sections of Antarctica combined. The depth of water along its front shows very clearly that the northern edge at least is afloat, and the vast extent of comparatively smooth level surface at a comparatively low altitude has led to the conclusion that the major portion of it is afloat. The elevation of certain portions of the surface would indicate a tremendous ice depth or that it was grounded either above or below sea level.

Are these higher portions resting on an elevated portion of the underlying rock or on pedestals of ice that remain from another age when and if the ice was piled high enough to force it to the bottom over a large portion of this area, and the elevation at this point is still great enough to hold the ice on the bottom?

What produces badly crevassed areas in a region completely surrounded by comparatively smooth ice and the surface all at about the same level and the badly crevassed region extending for more than a hundred miles south from the western edge of the Bay of Whales?

What produces such lasting features along the barrier wall as the Bay of Whales, Lindbergh Inlet, and Discovery Inlet?

How deep will the ice be forced into the water before it is melted away on the bottom as fast as it forms on top, and what is the greatest thickness of floating ice found here?

The Seismograph

These and many other questions concerning this region, to say nothing of the Polar Plateau, led us to include in our scientific equipment an instrument new in polar exploration, with the hope that we might make a start in the direction that would eventually lead to the solution of some of these most interesting problems. The equipment referred to plays a greater part in the accurate location of geologic structure in the oil fields than any other geophysical instrument.

The instrument used for our geophysical work was a *Seismograph* designed especially for those regions. For such work in the oil fields there are usually three separate parties of from three to nearly a dozen men each. The total equipment involved will normally weigh not less than five or six thousand pounds, and sometimes more. Seismic equipment on these proportions was obviously out of the question from the standpoint of weight and personnel. The limitations necessarily imposed by the fact that it would be necessary to transport the equipment over many miles of Antarctic snow and ice and operate it at very low temperatures, and the absence of dark-room facilities on the trail, presented some difficult problems of design and mounting, and the matter was put before William Green of the Seismograph Service Corporation of Tulsa, Oklahoma. Because this equipment served us so well, we being able to occupy as many stations with from two to four men operating under Antarctic conditions as are normally occupied by a full crew in the oil fields, the author has thought it advisable to include a brief description of the equipment and the procedure used. Not only were these stations occupied by a very much smaller party, but the territory covered by this survey was many times larger than that normally covered by the larger units in the oil fields. In addition to making the equipment very light, it was necessary that it be very sensitive so as to make it possible to obtain good reflections with very small charges of Trojan Powder or TNT, thereby increasing our operating radius by further decreasing our load. These explosives were used because of the safety of handling and their dependability at the extremely low temperatures. In addition to being very sensitive, the equipment must be sufficiently rugged to withstand the punishing treatment involved in traveling over rough hard ice, and through pressure ridge areas, to say nothing of the ten-to-one chance that it would fall into a crevass.

On this point it suffices to say that on the more than three thousand miles of travel in actual operation of this equipment in the Antarctic by dog team, tractor, plane, and boat, the instrument was never once thrown out of adjustment, nor a single suspension broken in the fine element oscillograph, and the sled on which it was mounted broke through the thin snow bridge over several crevasses and had several nasty spills in pressure ridge areas. On one occasion it was transported by dog team for more than two miles over loose pieces of floating bay ice, the pieces of ice being pulled close enough together so that the dogs could jump from one piece to another.

The camera, oscillograph, amplifiers, control unit, timing fork, shielded battery box, and geophones were taken to the Antarctic as separate units, and mounted into a single trail instrument after we had carried on sufficient experimental work to determine the most suitable arrangement for rapid and efficient operation

The weight of the Seismic equipment, complete, as it was used on the trail, including explosives and caps for occupying 25 stations making four shots at each station, radio equipment, supply of recording paper, navigating instruments, and including weight of sled, was 550 pounds. The camping equipment, dog food, and personal supplies carried on the front sled including the weight of the sled, was about 400 pounds.

Procedure

After considerable experimental work, the following general procedure was adopted. When the outfit was traveling over rough surface, the cable was carried on a large reel, and the augers and shooting equipment trailed on their small skeleton sleds behind the main sled. If the surface was smooth, as was usually the case, the cable was trailed behind the sled with the two augers trailers attached to the cable so as to be in the proper position for the shot points when the outfit stopped to occupy a station.

With a four-man party, there would be two shooters, each skiing along beside one of the auger trailer sleds. The operator and assistant operator, on skis, drove the dog team and broke trail out in front of the dogs. When a stop is made, each man and whatever equipment and material he would need was in its correct position. The shot distances were measured on the cables, the distances being frequently checked and corrected for any stretching of the cable. While the two shooters were burying their two or three charges in separate holes about 6 feet deep, the assistant operator placed the geophones in holes drilled two feet deep into the snow. The holes were then filled with loose snow and all cables within six feet of the geophones covered with snow to prevent any disturbance being produced by the wind vibrating the cable. It was necessary also that the surface in the immediate vicinity of each geophone be fairly smooth to prevent wind disturbances. The geophones were spaced two hundred feet apart, and in the same straight line with the two shotpoints. The shotpoints were so spaced that the distances from the closest one to the three geophones were 400, 600, and 800 feet, respectively, and the distances from the farthest shotpoint were 1,000, 1,200, and 1,400 feet. While the shooters and assistant operator were placing the charges and geophones, the operator recorded the necessary data for the station from which its position and altitude could be determined. Then, after checking his instrument panel, he adjusted the sensitivity of the geophone circuits, making use of the vibration produced by the assistant operator's skiing back past the geophones. After making sure that the dogs were all quiet, the operator signaled the farthest shooter to stand by, then after starting to turn the camera, he signaled for the shot. The shots were fired in as rapid succession as the shooters could change their connections, and the operator and shooters exchanged signals.

By the time the equipment had been secured ready to travel, the geophones had been picked up and the small trailer sleds attached to the cable. The assistant operator usually served as dog driver, and the operator broke trail on skis to the next station. After becoming accustomed to the work, we could sometimes occupy a station in as little as fifteen minutes, and it seldom required more than thirty minutes.

We had completed the necessary experimental work and started our routine field work on Thanksgiving Day, 1934, and continued it until everything had to give way for the loading operations the last of January for our return to the States. In this time there were only thirty-three days that were suitable for operating the equipment, but in that time we were able to make 463 records at 122 stations. These stations represent a total distance traveled of nearly 3,000 miles, about two-thirds of which was on skis and with dog teams. Most of the remainder was by plane.

There were two days during which we traveled 35 miles on skis, and on one of these days we occupied seven stations and on the other, five stations. There were ten different days on which we averaged 26 miles per day, and occupied on the average five stations per day. The largest number of stations occupied in one day was eight, and on that day we skied sixteen miles.

Seismograph Party in the field, traveling from one station to another.

On one flight with the "Condon" we took off at 7:10 P. M. and returned to Little America six and a half hours later, after making seven landings on a radius of about 25 miles from Little America, occupying a station at each, and on the way back to Little America we ascended to an elevation of 16,000 feet for meteorological observations. In two subsequent flights we flew west to Discovery Inlet and south to Bolling Advance Weather Station.

In the work with the plane it was necessary that a considerably larger crew be used. The Condon plane was used for this work, which required a pilot, co-pilot, navigator, radio operator, and two or three men to operate the Seismic equipment. The navigator, assisted by the co-pilot, took sun sights with a theodolite at each station, to determine its position, and the altitude of the stations was obtained from the altimeters in the plane.

In order more closely to connect the stations occupied by the plane with those occupied in the vicinity of the Bay of Whales with dog team, the equipment was again mounted on the sled, and a series of stations were occupied parallel with the edge of the barrier and extending from the Bay of Whales to Discovery Inlet, where a rendezvous had been arranged with the Bear, as it returned to Little America. Many of the problems connected with the Ross Shelf ice do not come within the scope of this paper and will be the subject of subsequent articles by the author.

The proper interpretation of seismic records in such a region where none of the characteristics is known is predicated upon having a series of stations extending from a region of known conditions to the region where information is desired. For this purpose we started our series of measurements on the relatively thin ice on the Bay of Whales where the thickness of the ice and the depth of the water under the ice were known. Then, after having determined the velocity of sound in the various forms of snow and ice, and in sea water at the temperature and salinity existing there, we were ready to start an extensive survey. While there is still a great deal of information that can be obtained from these data, several very significant facts have already been obtained.

There was a section of high barrier somewhere to the southeast of Little America that had been known since Amundsen's time, but no one had any very definite knowledge as to the elevation of the surface or its extent. Numerous flights across it fairly definitely fixed its position and determined its size to be much greater than had been supposed, being about one hundred miles north and south by nearly forty miles east and west. Subsequent seismic surveys of this region showed it to have an elevation in places of more than 1,400 ft. and supplied the first scientific proof that the land was actually above sea level. Perhaps this is the first island whose existence has been established and whose boundary has been outlined and elevation determined without the island ever having been seen. The island was named Roosevelt Island after President Franklin D. Roosevelt.

Seldom has a new method of exploration been adopted with the expectation of adding to the known land surface of the earth but that it has shown the non-existence of reported land areas. The Seismic method is no exception in that respect, for Prestrud Island (L. M. Gould, *Bulletin of the Geological Society of America*, Vol. 46, pp. 1367-1394) on which Gould explains the existence of the Bay of Whales probably is not an island in the sense that it extends above sea level. If the ice is grounded in that region it is likely at a considerable distance below sea level, for a sounding on the northern portion of this supposed island shows the bottom to be more than a thousand feet below sea level with a bottom that is increasing in depth as it goes south at the rate of about 20 feet per mile, as indicated by stations North, West, and South of that point.

Seismic methods are now being used for a great variety of purposes such as building, ship and airplane structures, and a great variety of other structural designs. A recording Seismograph of the type used in the Antarctic and suitable for studying structural vibrations will be available in the near future for work in the Research Foundation of Armour Institute of Technology.

BOYD EXPEDITION SETS ARCTIC MARK

Its Ship Goes Up East Greenland Coast Farther Than Any American Had Before

By LOUISE A. BOYD

LOUISE A. BOYD ARCTIC EXPEDITION, ON THE STEAMSHIP VESLEKARI, Sept. 7.—We have completed our photographic and geological survey work at several important points in the Arctic this year, and reached the farthest north any American has ever gone by ship on the east Greenland coast. Altogether it has been a successful season, although we will not know exactly how important until our records have been charted by the American Geographical Society.

We began our work at Jan Mayen Island, where we made magnetic and tide observations and soundings. We also made current observations between there and Bear Island over a bank discovered last year, which seem to be of great importance.

The soundings were continued to Spitsbergen, and north of Seven Islands on the northern coast of Spitsbergen to Lat. 81:30 degrees N., in a region where few soundings had been made. There was no ice as far east as Cape Platten in early July.

Fine Weather Aids Survey

We then went westward along the pack ice to Greenland, where open water made unusually fine conditions along the northeast coast, enabling us to land at the northern point of Ile de France in Lat. 77:50 N. To the best of our knowledge this is the second farthest north landing ever made by ship on this coast. The Veslekari was the only ship which went as far north this year.

All of August was spent in the vicinity of Germania Land. Dove Bay was open for the first time in several years, and we penetrated it to some distance. Numerous fjords were also visited in this region and a good deal of detail survey work was done. The short-wave radio observations all Summer show many complete fadeouts, but the short waves worked out of the fjords, much to our satisfaction, despite the high cliffs. We were enabled to be in daily communication with Norway, sending meteorological data, and had frequent communication with New York.

We will arrive at Tromso, Norway, tomorrow. It has been a most satisfactory season from every point of view.

By DR. JOHN K. WRIGHT
of the American Geographical Society

In penetrating to Lat. 77 degrees 50 minutes N., Long. 17 degrees 10 minutes W., off the icebound coast of East Greenland, Miss Boyd came to within about thirty miles of the northernmost latitude (78 degrees 16 minutes N., 16 degrees 21 minutes W.) reached in this area by the Duc d'Orleans in the Belgica in 1905. The Ile de France, on which she landed, lies some fifty-five miles due north of the point off Germania Land, where Captain Bob Bartlett turned back in the Morrissey in 1930.

Thus Miss Boyd may claim the credit of having gone farther north in a ship along the East Greenland shore than any other American and of having attained what is probably the second highest latitude ever reached by a vessel in these waters.

The extreme northeastern shoreline of Greenland, beyond Miss Boyd's turning point and that of the Belgica, was first explored in sledges by the "Danmark" expedition of the ill-fated Mylius-Erichsen in 1906-08 and parts of it have more recently been mapped from the air by the Danish explorer, Dr. Lauge Koch.

Miss Boyd's journey of this year is the seventh that she has made to the Arctic and the sixth expedition that has been carried out under her leadership. It is her custom to charter a Norwegian sealing vessel, the Veslekari, and to take with her on each trip a small company of experts, who have already gathered a harvest of scientific data. In 1928 she took part in the search for Amundsen.

Four Trips for Society Here

Miss Boyd's last four expeditions have been conducted under the auspices of the American Geographical Society of New York: Those of the Summers of 1931 and 1933 took her to the wild, mountainous regions of Franz Josef Fiord in East Greenland, where a critical area was mapped and geological and botanical studies were made.

Last Summer she revisited Jan Mayen and Spitsbergen and spent a month on the east coast of Greenland. With the aid of a sonic depth finder, soundings were taken, which have contributed to our knowledge of the floor of the Greenland Sea. At one place a submarine ridge, apparently about seven nautical miles long by one mile wide, was discovered rising to within at least 310 fathoms of the surface.

Louise A. Boyd

Miss Boyd's objectives this year were similar to those of 1937. The scientific staff consisted of a hydrographer, a surveyor, a geologist and a radio operator who was to carry on research in short-wave transmission. The program contemplated a continuation of the work of deep-sea sounding begun in 1933, as well as soundings in the Greenland fiords, tide-gauge and current observations at Jan Mayen and on the Greenland coast and map-making and geological studies in Greenland.

Explorer reports that in this year's Arctic survey she went by ship up the East Greenland coast to a point farther north than any American had gone.

Fata Morgana Islands Are Found Not to Exist

COPENHAGEN, Denmark, May 16.—Landing safely at his King's Bay Base this morning after an eleven and one-half-hour flight, Dr. Lauge Koch was able to state definitely that there is no land between Spitsbergen and Peary Land, the supposed location of the mysterious Fata Morgana Islands.

Dr. Koch flew over territory where Ivan Papanin of Russia and others believed they had seen land. The weather was clear and visibility unhampered.

He reports the northernmost part of Peary Land is almost an island, since Frederick and Hyde Fjord cuts in from the northeast 180 kilometers [about 112 miles] and not, as previously supposed, 70 kilometers [about 44 miles.] The territory thus forms a geographic entity with Roosevelt Peak its center.

COPENHAGEN, Denmark, April 30 (AP).—Dr. Lauge Koch, the Danish explorer, departed by seaplane today for Spitsbergen, a group of Norwegian Arctic islands, to start a polar expedition to determine whether firm land exists between Spitsbergen and North Greenland.

Dr. Koch's uncle, Captain J. P. Koch, reported in 1907 he had sighted land. Members of another expedition in 1912 said they had seen it, but only at a distance. Last Winter Soviet explorers drifting down from the North Pole on an ice floe thought they sighted land through the Arctic darkness.

The Danish State placed the vessel Gustav Holm at Dr. Koch's disposal to make sure.

The Spitsbergen group lies about 400 miles off the extreme northern coast of Norway and about the same distance west of Peary Land, which is the northernmost tip of North Greenland, 450 miles from the North Pole.

Dr. Lauge Koch has led several expeditions for geological, geographical and botanical research in polar and semi-polar regions. Since 1912 he has penetrated Western, Northern and Eastern Greenland.

In 1931, at the age of 38 years, he headed the greatest expedition at that time ever sent from Denmark to Greenland. His purpose was to complete the investigation of the coast between Scoresby Sound, 600 miles north of Angmagsalik, and Denmark Harbor, about 450 miles north of Scoresby Sound. A survey was also made of the mineral resources of Eastern Greenland.

In the same year he returned with a remarkable collection of Stegocephali fossils. He said they were four-legged creatures, half way between fish and toads in the evolutionary scale.

His earlier exploits include his connection with the bicentenary jubilee expedition, "north around Greenland," in 1920-23, and his leadership of government expeditions to East Greenland in 1926-27, 1929 and 1930. He is a member of the New York Explorers Club and has lectured at American universities.

World's Biggest Glacier System, Save Polar Caps, Found in Alaska

Washburn Expedition Sees 235-Mile Combined Ice Fields in Flights Around Mts. St. Elias and Logan

By Bradford Washburn

(Head of the Harvard University-National Geographic Expedition to the St. Elias range's glacier fields and an instructor in geography at Harvard.)

CORDOVA, Alaska, Aug. 20 (AP).—The National Geographic-Harvard University expedition discovered Saturday what is without question the largest glacier system in the world outside the Polar ice caps.

We landed at Cordova Saturday afternoon after a wonderfully successful flight down the backbone of the St. Elias range. The purpose of the flight was to discover the source of the huge Bering glacier, which flows almost to the sea 100 miles west of Mt. St. Elias.

Last week, with Bob Reeve, pilot, of Valdez, we explored the extreme western limits of what appeared to be an enormous glacier connecting Bering glacier with Hubbard and Malaspina glaciers, already the two largest in the world outside of the Polar regions.

Saturday's flight, during which we flew completely around Mt. Logan and Mt. St. Elias, the second and third highest peaks in North America, definitely proved Bering, Seward and Malaspina glaciers are connected by a huge river of ice.

This vast mass of glacier ice is from 5,000 to 7,000 feet high and more than 100 miles long. It is completely hidden from view behind the coastal mountain ranges.

Others on the expedition flight were Dr. G. D. Hanna, geologist, with the California Academy of Science, San Francisco; Garrett Eddy, Seattle, and Harold Gillam, pilot.

We made a complete photographic record of the glacier discovery from altitudes ranging up to 15,000 feet. The flight took more than six hours.

Aside from our photographs and discoveries, Dr. Hanna has made tremendously interesting geological discoveries about formation in the heart of the St. Elias range.

This flight has been anticipated and prepared for months. The ends of these great, well known glaciers were so huge we were almost certain they had a common gathering ground.

Our discovery of this great ice field proves the combined glacier system of the St. Elias range is a mammoth expanse of unbroken ice several thousand feet deep stretching almost from Cape St. Elias southward and eastward for 235 miles to the Alsek River valley.

The flight marks the successful completion of the major objective of the National Geographical-Harvard University flight expedition of 1938.

By The Associated Press.

BOSTON, April 15.—Word came from England today that Bradford Washburn, mountaineer and explorer, was to receive the Cuthbert Peek Prize of the Royal Geographic Society of London for his exploration and glacial studies in Alaska.

Mr. Washburn was the leader of the Harvard-Dartmouth Mount Crillon expedition in 1934 and the Mount Lucania expedition in 1937. He is a son of Dean Washburn of the Episcopal Theological School of Cambridge, Mass., and, though a veteran of eleven mountain-climbing expeditions, is less than 30 years old. Last year his party ascended Mount Lucania in Alaska, then the highest unclimbed peak in North America, 17,500 feet high. They planted the special flag of the National Geographical Society at the summit.

Two days later the party scaled Mount Steele, 16,600 feet high. During the expeditions he and his party took numerous photographs of hitherto unmapped territory from airplanes.

Tells of Glacier Discovery

Associated Press photo

Bradford Washburn on his Alaskan expedition

REINDEER PROVE A BOON TO ALASKA

WASHINGTON.—Since Congress made its first appropriation for the introduction and distribution of reindeer in Alaska, the reindeer herds of the Territory have increased from a few hundred to an estimated 700,000 or 800,000, Interior Department officials recently told the House Appropriations Committee. Because of their economic importance and their food value, development and distribution of reindeer herds are now a basic element in the Federal program of assistance to the widely scattered Eskimo population of Alaska.

When the United States bought Alaska from Russia in 1867, reindeer were unknown on the North American Continent. Siberian natives, however, had long thrived on reindeer meat, and later, when many Eskimo villages were threatened with starvation, Dr. Sheldon Jackson, the Bureau of Education's first general agent in the Territory of Alaska, suggested that Siberian reindeer might be brought across the Bering Sea and introduced into Alaska to supplement the meager food supplies of the Eskimos.

Though the initial effort to get a Congressional appropriation failed, Dr. Jackson succeeded through a public appeal in obtaining a few thousand dollars to import the animals into Alaska. In 1893 Congress opened the public purse-strings, and during the next nine years about 1,300 reindeer were imported. In that year the Russian Government imposed a veto on any further exportation. Enough reindeer, however, had arrived to put the industry on a sound basis.

'Lost World' Discovered In Mountains of Alaska

Washburn, Explorer, Reports Ice May Hide Gold

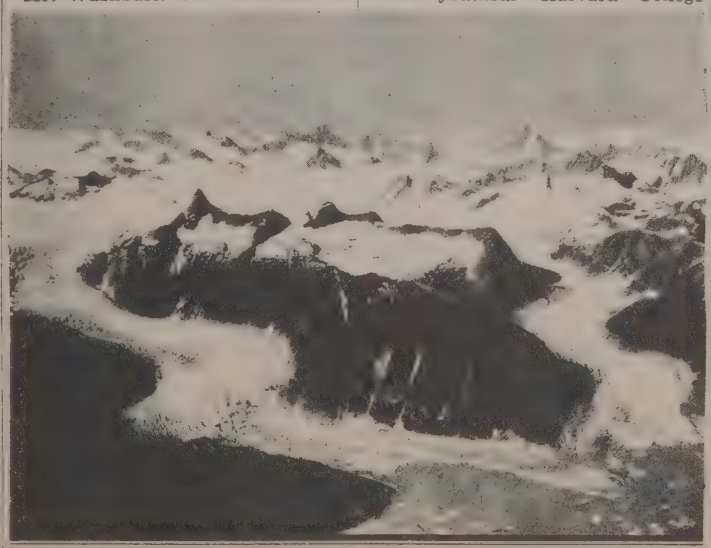
BOSTON, Oct. 11 (UP).—Discovery of a "lost world" containing mineral deposits and perhaps gold was disclosed today by H. Bradford Washburn, leader of a Harvard Alaskan expedition, on his return from a summer's exploration of the St. Elias range.

The youthful Harvard College geographer-explorer said bad weather during all except eight days of his four and a half month trek into the hitherto unexplored south Alaskan mountain range made a contemplated photographic study almost impossible.

"The lost world," Washburn said, "is an unmapped valley of ice, 500 to 2,000 feet thick, 250 miles long and from one to twenty miles wide. Surrounded by the St. Elias Range, it is the source of fifteen glaciers as ice crumbles through narrow passes and thunders down into Prince William Sound."

Washburn said its ice-capped peaks, like Mt. St. Agnes and Mt. Sanford, tower from 10,000 to 20,000 feet. There are no inhabitants and apparently no animal life, he said.

"From a hasty air observation," he said, "I feel certain there are vast mineral deposits and probably gold or other valuable ores."



Part of a system: twin glaciers in Alaska's coast range

Eskimo Bite Is Hardest, Even With Baby Teeth

Strength Is Attributed to Gnawing on Sealskins

MINNEAPOLIS, July 16 (UP).—Athletes and armchair invalids have teeth of almost equal strength, and neither is a match for an average six-year-old Eskimo girl, according to Dr. Peter J. Brekhus, professor of dentistry at the University of Minnesota, who acquired the information with his gnathodynamometer.

Dr. Brekhus says his tests indicate teeth are strong only in relation to the amount of use they get; diet and general good health have little effect. His device measures biting strength in pounds.

He said that 108 Minnesota athletes with an average weight of 176 pounds and average height of six feet bit an average of 126 pounds each, 108 dental students with an average weight of 158 pounds and average height of 5 feet 9 inches bit an average of 125 pounds each. He lent the instrument to a research worker who took it to Alaska, where it was discovered that the average six-year-old Eskimo girl had a bite of 150 pounds and her parents went as high as 340 pounds.

FLYING PRIEST RESCUES MISSIONARY IN ARCTIC

Schulte Brings Fever Victim to North Canada Hospital

CHESTERFIELD, N. W. T., Aug. 11 (Canadian Press). — The Rev. Paul Schulte, flying priest of the Arctic, landed here today in his plane bearing Father Cochard, stricken missionary picked up at Arctic Island, Baffin Bay.

The pilot flew to the island yesterday to bring out Father Cochard, who was dangerously ill of a fever. Father Schulte and his mechanic, Brother Braudoin, had flown 2,800 miles to complete the rescue mission which started from Churchill, 1,200 miles from this place.

The 800-mile flight from Arctic Bay to Chesterfield was without incident.

Father Schulte brought his plane down on Hudson Bay off Chesterfield and Father Cochard was transferred to the hospital here conducted by the Oblate Fathers, where he will be in the care of Dr. Robert Melling.

Priest Founded Wide Service

The danger of disease striking missionaries in lonely outposts remote from the medical facilities of civilization, as in the case of Father Cochard, led Father Schulte, the flying padre, to found some years ago the Missionary International Vehicular Association, which seeks to keep missionaries in touch with the world through airplanes, automobiles and motor boats.

Father Schulte, a German aviator during the World War, during his student days had promised Father Otto Fuhrmann, a veteran missionary, that he would take up the latter's work in Africa. In 1925 Father Fuhrmann died in Ovamboland, Africa, alone in a company of pagans without a priest. Realizing that with an airplane Father Fuhrmann could have been transported to a modernly equipped hospital within two and one-half hours, Father Schulte decided to introduce the airplane into missionary work.

Since then Catholic missionaries, scattered in African jungles and Arctic wastes, have become well acquainted with Father Schulte, a blond giant, who wears clerical garb when flying.

Recently he has been laying the groundwork for an aerial mission transportation service in Canada's Arctic, in the sparsely settled country that stretches eastward from the Mackenzie River to Chesterfield Inlet. Last year he radio-piloted the mission supply ship Ste. Therese through Frozen Strait to the Oblate Mission stations among the Eskimos.

Reject Snow 'Frostbite Cure'

INDIANAPOLIS (Science Service).—The old custom of treating frostbite by rubbing with snow is strongly condemned by Indiana physicians. Grit and dirt in the snow, especially apt to be found in city snow, will scratch and otherwise injure the frostbitten skin if rubbed into it, says a bulletin from the Indiana State Medical Association. Approved method of treating frostbite is "to use local body heat or apply gentle warmth to the affected area by wrapping the whole hand or foot in wool."

Father Paul Schulte

'LONE WOLF' SCIENTIST IN ARCTIC TWO YEARS

English Geologist, Companionless in Winter, Continues Work

CHURCHILL, Man., April 30 (Canadian Press). — Thomas H. Manning, English geologist who has conducted scientific studies in the Canadian Arctic since the Summer of 1936, is establishing a reputation as a "lone wolf."

Three other young English scientists accompanied him into the wilderness bordering Northern Hudson Bay, and P. D. Baird, R. J. O. Bray and C. W. Rowley returned to civilization last year after eighteen months in the Arctic.

Mr. Manning remained. He was alone all Winter on Southampton Island at the mouth of the bay, observing magnetic variation and mapping part of the coastline. Recently he traveled over the ice to Chesterfield Inlet, 325 miles north of Churchill, to obtain supplies.

He will return soon to Southampton Island and later proceed to Baffin Island, where he expects to spend two years in exploration work. He expects one and possibly two scientists from London, England, to join him this Summer, reaching the North aboard the ship Nascopie, which he plans to meet at Cape Dorset, on the southern coast of Baffin Island.

Since his associates left the Arctic last year Mr. Manning has lived and traveled alone, only visiting the scattered trading posts when short of supplies. Those who have encountered him in the Northern vastness say that he works continuously but always by himself, associating with neither white man nor Eskimo.

ESKIMOS TEACH RANGERS

Alaskan Natives Show How to Build and Repair Dog Sleds

Rangers at Mount McKinley National Park, Alaska, have learned much from the Eskimos in the construction and repair of their dog sleds, the principal vehicles of locomotion during the long Arctic Winter.

In the far North, where iron and wood are scarce, the Eskimo builds his sleds without a single piece of iron. The runners are shod with ivory, says a Department of the Interior bulletin. All new pieces of wood are first steamed, then placed in forms and left there to dry in the required shape. No nails or screws are employed. Each joint is mortised and held in place with babiche thongs. This insures greater flexibility. If the sleds were rigid they would soon break.

Such is the native method which park rangers have adapted for the service sleds. A concession to the white man's ways is made only in the finishing of the runners. Though made of wood, they are shod with steel instead of ivory.

Roses Bloom Far Into the Arctic; Rich, Fertile Area 'Last Frontier'

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OTTAWA, July 2.—In the Far North lies a new agricultural empire—nearly 700,000 practically unpeopled square miles where roses and honeysuckles bloom and potato vines double their height in a week, and the sun shines nearly all night in the Summer.

This is the white man's last frontier and if he does not conquer it the yellow man will. The challenge was presented before the American Association for the Advancement of Science here by Dr. W. D. Albright, superintendent of the Canadian Government Experimental Station in the Peace River country of Northern Manitoba, who has devoted nearly a lifetime to the agricultural conquest of the Far North.

But, he stressed, it also must be a cultural conquest. This problem lately has challenged the imagination of the French poet and philosopher, Georges Bugnet, who now is devoting himself to publicizing the new land and to breeding flowers for the settlers. Already he has produced a red rose which may bloom regularly around Northern Mackenzie Valley homesteads, the Lac la Nonne.

Probably 100,000 square miles in the valleys of the Mackenzie drainage system around the 60th parallel of latitude are good for cropping and some of the rest may serve as range country, Dr. Albright said. The problems of living there are to be conquered first, he emphasized, by the breeding of new varieties of grains, fruits and vegetables suited to Arctic conditions. This would involve the testing of thousands of species and varieties, he said.

It was just as necessary, he added, to remove the psychological hazard. The popular impression was that the land was bleak and barren; women shuddered at the thought of making homes here, he went on. In fact, he was convinced, he said, that it could be made a land of fruit and flowers.

Crab Apples Ripen in the Open

The French poet now is busy making crosses of other roses and peonies. Other flowers are being tested at Dr. Albright's own station.

Flowers and fruits to make life more livable are considered at this stage as important as economic crops. Dr. Albright drew a glowing picture of the land under favorable conditions. Crabapples ripen in open gardens on the southern shore of Great Slave Lake, nearly a thousand miles north of the United States border. Tomatoes ripen on sunny hillsides eight years out of ten. Common wild fruits can be gathered at Arctic tidewater. Eighty miles beyond the Arctic Circle a pioneer named W. D. Clarke is growing pumpkins, phenomenal crops of some garden vegetables, and grains for chickens.

The cold, long days seem to be the ideal condition for potatoes. Roses on the hills bloom as late as October. Currants and raspberries bear freely and strawberries and gooseberries sparingly. Corn on the cob can be had by early Autumn, and lilac, honeysuckle and rowan have splendid bursts of bloom. The climate is better than would be expected because of the shelter of the hills and the northward flowing Mackenzie.

Both Japanese and Chinese, Dr. Albright found in a recent survey, are acclimating themselves well to the country. One Japanese family is living in comfort more than 500 miles north of the 49th parallel, and there is hardly a settlement without a Chinese restaurant.

Not a Land for Weaklings

He said that the new land of the midnight sun had its drawbacks and was no place for weaklings. It offers homes only for men of the pioneer qualities possessed by the early settlers of the New World. Cold and frost linger into the Summer, especially in the valleys. Winters are long and almost sunless. Rainfall is scanty, although a good deal of moisture is held in the ground by the heavy freezing.

Another speaker before the meeting of scientists asserted that mother earth could feed a human family three or four times as great as the present world population, if people could be made to behave. This statement came from Dr. Frank E. Lathe of the Canadian National Research Council.

Even now, he told the assembld scientists, there would be an abundance for everybody on earth to eat and wear if it were properly distributed and science had the means, at present utilized haphazardly if at all, of enormously expanding production in most lines.

With the great recent developments in the production of artificial organic and mineral fibers, he said, nobody need go cold or ragged in this teeming world of the future. Heat and power, however, he admitted, might be a problem for a world population four-fold that of the present. But, he stressed, there were the as yet undeveloped possibilities of tapping the great furnace of the earth's interior, utilizing the power of the winds and tides, and converting directly into power the heat of the sun, most of which now goes to waste.

But in spite of mother earth's bountiful larder, Dr. Lathe said only three nations in the present political set-up of the world—the United States, the British Empire and Russia—would be able to support themselves. All the rest of the world would be mutually dependent.

POLES HELD FAVORED IN RANGE OF SUNLIGHT

Illumination Engineers Find Less of It at the Equator

"If what you want is sunlight, live either at the North or South Pole, not the equator," is the advice of illumination engineers, judging from a study recently completed by Frank Benford and John F. Bock, of the General Electric Company. The poles receive sixty-five hours more sunlight a year than does the equator, their study reveals.

The explanation is that the earth's atmosphere refracts the sun's rays, so that the sun is visible even when it is below the horizon. At the equator this increase amounts to forty hours a year, compared to 105 hours at the poles.

ESKIMO ART SHIFTED

Went Conservative After Early Experiments, Says Specialist

COPENHAGEN (Science Service).—Cave men who lived 25,000 years ago were New-Dealish in art. But Eskimos, who turned out somewhat similar art later on, became hide-bound conservatives. So the International Congress of Anthropological and Ethnological Sciences, in session here recently, gathered from a discussion on prehistoric art as a clue to the mysterious past of the world's Eskimos.

Henry B. Collins Jr., of the United States National Museum, who was honored in 1934 by a Danish award for his Alaskan explorations, told the congress that Eskimo origins must be sought, not in America, but in the Old World. Similarity of Eskimo art to that of the old Stone Age artists in distant Europe is still a mystery. But Mr. Collins pointed out that Eskimo art can now be studied through a series of its stages, with thousands of ivory and bone and wood articles found in the North; and that the oldest Eskimo art styles seem closer to the young, experimental art of the old Stone Age than do the rich but conservative patterns that later became dyed-in-the-wool Eskimo tradition.

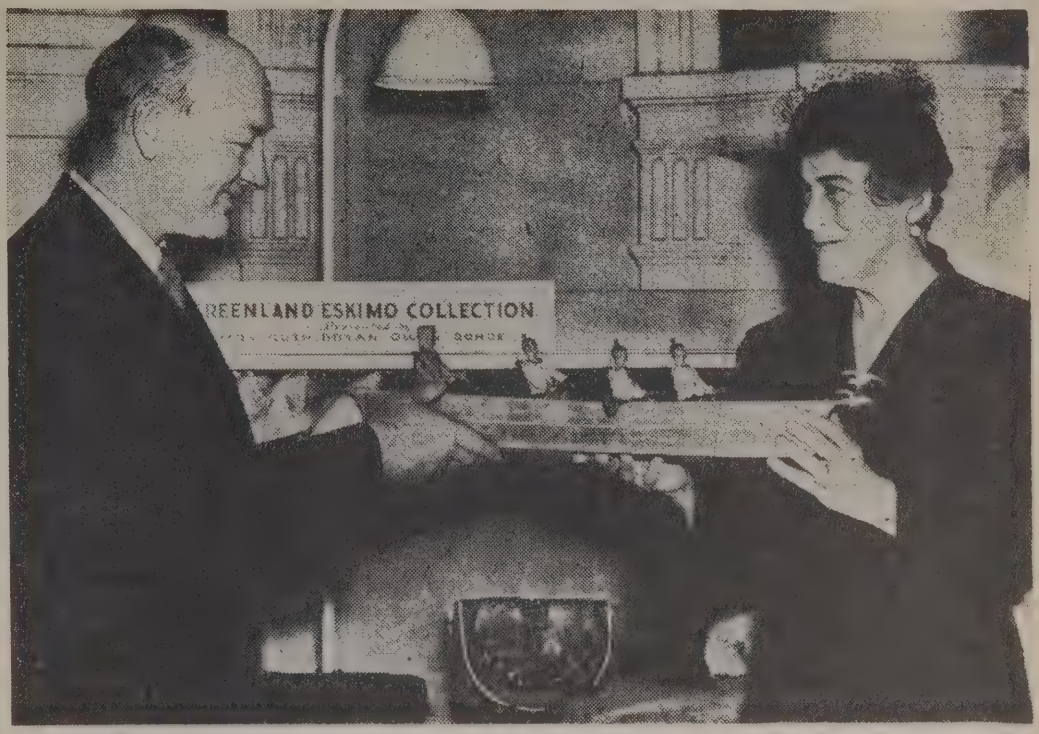
MUSK OX THRIVE IN ARCTIC

Gradual Increase of Island Herd May Prevent Extinction

ANCHORAGE, Alaska (AP).—Threatened extinction of the musk ox may be prevented, a Federal biological survey official says, by growth of a herd planted on an isolated Arctic island.

L. J. Palmer of the survey's research division said musk ox placed on Nunivak Island in the Bering Sea in 1936 and 1937 have increased from thirty-one to fifty.

He explained the musk ox, which combines characteristics of the sheep and ox, serves as an excellent source of wool and meat. If the Nunivak Island herd increases sufficiently it will be transported to the Barrow district to provide game for Eskimos.



Dr. Roy Chapman Andrews receiving from Mrs. Ruth Bryan Owen Rohde, former American Minister to Denmark, a boat of sealskin made by Eskimos of Greenland, one of the items in the collection of Greenland anthropological material given to the American Museum of Natural History by Mrs. Rohde

SCHOLAR SINGS PRAISE OF ESKIMOS' CULTURE

They Are Rated With Ancient Egyptians and Chinese by French Scientist

Perhaps in future we should speak of the learned Eskimos. A French scientist has announced that Alaskan Eskimos could read and write. He rates them as equals in culture with the ancient Chinese and Egyptians, reports Emily C. Davis of Science Service.

This scientist, André Leroi-Gourhan of the Museum of Ethnography of Paris, regards the pictures Eskimos engraved or carved on their belongings as a true system of writing. That is, Eskimos used the pictures as conventional signs by which they recorded their acts and intentions, for others to read.

He suggests that Eskimos began by making pictures of their sign language. The sign for beaver was putting two fingers in the mouth indicating teeth. Eskimos learned to recognize drawings of such gestures, or of objects, just as they recognized gestures of a real person.

Ivory bow-drills, used in boring holes and in fire-making, were so elaborately covered with neat rows of this picture writing that they became veritable books, on which sagas of exploits were told.

An outstanding usefulness of the writing, cited by the French scientist, was for visiting cards. Eskimo visiting cards were left for visitors, not by them. When a tribe vacated its Winter village for the Summer one, it might leave a posted plaque engraved with instructions for following the group. Often the visitors who came were stranded travelers, or relatives driven from their own homes in some famine. Reading and writing were thus matters of life and death.

M. Leroi-Gourhan believes the Eskimos have been taken for granted as poor primitives whose disappearance would mean nothing to human civilization. Their ancient art recently surprised archaeologists who unearthed fine examples. Now they are candidates for new honor, as men of letters.

Ruth Bryan Rohde Gives Collection to Museum

Greenland Objects Accepted Formally by Andrews

Mrs. Ruth Bryan Owen Rohde, former American Minister to Denmark, presented Sept. 14 to the American Museum of Natural History, Seventy-seventh Street and Central Park West, the collection of anthropological material which she acquired on a visit to Greenland during her term of office.

The collection is displayed in three cases in the central hall at the museum's entrance, where it was formally accepted by Dr. Roy Chapman Andrews, director.

Most striking of the exhibits is the native costume presented to Mrs. Rohde, consisting of long leather boots, blue satin tunic ornamented with beads and bits of bright leather, and short fur trousers.

Carved ivory figures of men and animals and smaller wood figures representing different occupations were shown beside miniature kayaks and "women's boats," made of sealskin. The kayaks, Mrs. Rohde explained, were used by men for hunting expeditions and the larger craft, manned by women, were for transportation purposes.

Elaborate bits of beadwork and decorated leather were welcomed by the museum, according to Miss Bella Weitzer, assistant to Dr. Andrews, because they represented the transitional period between the ancient crafts and modern techniques dependent upon tools imported from more civilized lands.

Alaskan Seal Herd

KETCHIKAN, Alaska — Coast guard officers on the cutter, Redwing, reported in Ketchikan that they saw about 2,000 seals while convoying the famous Alaskan seal herd from Cape Flattery to Dixon entrance. The cutter, Haida, convoyed the herd from Dixon Entrance northward toward the Pribilof Islands. The herd is guarded by the coast guard to prevent poaching and is protected by international treaty. The proceeds of sale, above cost, are divided among the signatory nations.

RARE WHITEFISH RECEIVED

Natural History Museum Gets One of Salt-Water Variety

A member of a rare branch of the whitefish family is included among about twenty specimens of Arctic fish recently received by the American Museum of Natural History from Manitoba, Canada, the museum announced Sept. 26. Throughout the world, save in the Arctic, said the announcement, whitefish lived in fresh water, but the Arctic representative of the Great Lakes whitefish "runs in and out of salt water like salmon."

About ten species are represented in the shipment, including suckers, trout, lake herring, sculpins and cod. Arctic whitefish, said Dr. John T. Nichols of the museum's department of fishes, go up fresh-water rivers for spawning in late Summer after living earlier in the year in Hudson Bay.

BARTLETT RETURNS FROM ARCTIC CRUISE

Brings Two Live Walruses and 100 Stuffed Bird Specimens

Captain Robert A. (Bob) Bartlett docked his Gloucester fishing schooner Sept. 16 at West New Brighton, S. I., completing his twelfth annual cruise to the Greenland and Polar regions with a paid crew and nine college students who paid to work their passage.

The grizzled veteran reported that the expedition had encountered heavy fog and rain nearly all of the voyage, which began when the Effie Morrissey left New York last June 19, but very little adventure.

Captain Bartlett said that one of the most important undertakings was the planting of a World's Fair of 1939 flag on an ice floe about twenty miles south of Cape Sabine and 700 miles from the North Pole.

In the hold of the schooner he brought back two live walruses and a large number of other specimens, including fish and mammals picked up on the ocean bottom. More than a hundred stuffed birds also were brought back.

Captain Bartlett stopped off and visited his 85-year-old mother at Brigus, Nfld. Also on the trip was has brother, Captain Bill Bartlett, who served as first mate.

By CAPT. ROBERT BARTLETT

ON BOARD THE SCHOONER MORRISSEY, Aug. 7.—Bad weather prevented us from visiting Peary Monument. Secured our narwhal group for the Smithsonian Institution and two cute walrus pups for Dr. Mann of the Washington Zoo. Reached our farthest north twenty-five miles south from Cape Sabine, Ellesmereland. Hoisted the New York World's Fair Flag for 1939.

The gang running the fair—if they saw us yesterday sitting on big blocks of ice under a cloudless sky and brilliant sunshine with ivory gulls, fulmars, little auks and the barking of the walrus, they would envy us. Close, heavy pack-ice prevented our getting farther north. Ice extends from Ellesmereland to the Greenland shore.

A few miles away is Cape Sabine, the scene of Greely's death; and Littleton Island—here the Polaris disaster occurred. That intrepid New England whale man, Captain Tyson, was separated from his ship and shifted for 250 days through the long Arctic night. No wireless to cheer him, no electric gadgets to warm his feet, no airplane to bring him supplies, no ice-breakers to search for him. Decoration Day he was picked u poff South Labrador. I wonder how many American boys and girls know of this great man. He had successfully brought his original party and one extra to safety.

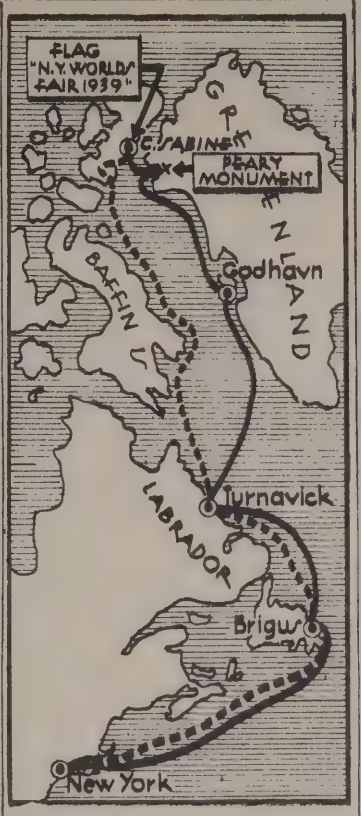
Greely, Hall and Nares of the British Arctic Expedition; Kane, Hayes, Sverdrup and Peary went over this territory.

ON BOARD THE SCHOONER MORRISSEY, July 28.

Leaving the Labrador coast at Turnavik we came across the Davis Straits and found as we came into the Greenland coast the water cold.

Coming over the Hellefiske Bank we counted twenty-one Portuguese fishing vessels anchored. We spoke to some of them and they reported "no cod," as the water was too cold. I judge the middle pack-ice is well over to the Greenland shore. Dr. Porsild in Godhavn told me that many cod had been picked up dead, owing to cold water off the Greenland coast.

Crossing Davis Straits, we passed many bergs, all of which were reported to the Hydrographic Office, Washington. A stay of a few hours at Godhavn followed, where I presented official papers. These were gotten from Denmark through the State Department, enabling us to visit Greenland and to add to our collecting of birds, flowers, mammals and marine specimens for the Smithsonian and the Cleveland Museums.



COMPILE POLAR BOOK

Explorers Club and WPA Force Combine in Work

The first bibliography of books dealing with the Polar regions to be prepared in sixty years is in preparation in New York by the Works Progress Administration under the sponsorship of the Explorers Club, according to Science Service.

The first section, already published, lists more than 450 titles, as against the fifty titles the Library of Congress was able to supply. The list includes all references from books, government documents and periodicals, an announcement from the club declared.

Vilhjalmar Stefansson, polar explorer and chairman of the club's section on polar exploration, and Leonard Outhwaite, chairman of the committee on bibliography, are guiding the project. More than half a million separate entries will be made by the time the project is finished, they declared.

MacGregor Pilot Flies Over Arctic; Reports Peaks in Ellesmere Island

By CAPTAIN C. J. M'GREGOR

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REINDEER POINT, Greenland, May 13.—Commander I. Schlossbach, U.S.N., retired, returned to the base of the MacGregor Arctic Expedition this morning at 9 o'clock after flying over the vast unexplored area northwest of Ellesmere Island, Canada. He left here yesterday at 1 P. M. and flew over Bache Peninsula, then over Ellesmere Island and came out over Canon Fiord on the west side.

His route was northwest over Schei Island, out Nansen Sound, past Axel Heiberg Island on his left. At the northern tip of this large island he set his course northwest from Cape Hubbard to approximately Long. 115 degrees W. and Lat. 82 degrees N. At this point he turned north to the eighty-third meridian north, flying at an altitude of 8,000 feet.

Commander Schlossbach used his field glasses and searched the horizon for land but was unable to see any signs of the mythical Crockerland. He then returned to the northwest shore of Ellesmere Island at Yelverton Bay and followed the coast south to Nansen Fiord.

At Nansen Fiord Commander Schlossbach was forced to land and refuel his tanks with gasoline that he was carrying in the cabin in five-gallon tins. To get them up to the wings he tied a rope to the cans and pulled them up, a hard and slow process as he had to climb down each time to tie on another can. While he was filling the tanks a bird about the size of a dove appeared, watched the performance from about fifteen feet away for several minutes and then flew away.

By the time Commander Schlossbach had finished filling the gasoline tanks the motor was too cold to start. He had to heat the motor again. This was done by putting a hood over the motor and using a large heating pot.

Commander Schlossbach was prepared for any such emergency in case he was unable to start the motor again. He carried a small sledge, skis, fur clothing, a tent, a small stove and food supplies for fifty days. He said he had no fear that he could not walk back to the base, as the ice was very smooth in the fiords and across Smith Sound.

When Commander Schlossbach pulled the starter the motor began to hum and he was soon on his way back. He arrived with eight gallons of gasoline remaining in the tanks. He reports that the ice was solid all the way out over the Arctic Ocean, with several small leads along the coast. There were no high mountain peaks in Axel Heiberg Island, but he observed several peaks to the east in Ellesmere Island when he returned to the coast near Yelverton Bay.

REINDEER POINT, Greenland, May 9 (By Wireless).—Commander I. Schlossbach, who took off last night on a survey flight over Ellesmere Island, Canada, was forced back after reaching the middle of the island when he encountered low clouds on the other side of the mountains.

Commander Schlossbach flew at an elevation of 6,000 feet. After being unable to cross over the mountains, he flew north about 100 miles. He discovered several mountain peaks, reaching 6,000 to 7,000 feet high in the interior of Ellesmere Island. He returned to the base to await better weather conditions.

Roy Fitzsimmons and Paul Furlong returned yesterday from Ellesmere Island by dog team after a two weeks' magnetic survey along the east coast.

NEWARK, N. J., Oct. 4. — The three-masted schooner General Adolphus W. Greely sailed into Port Newark this afternoon with Clifford J MacGregor and the eight other members of his meteorological expedition which passed fifteen months in the Arctic. The expedition, the first to explore the principal source of New York City's weather, left Reindeer Point, Greenland, July 6.

MacMillan Ends Cruise, Tells of Giant Ice Pack

Home From Arctic, He Relates How Ship Was Caught

MONHEGAN ISLAND, Me., Sept. 9 (AP).—Commander Donald B. MacMillan, veteran Arctic explorer, returned today aboard the schooner Bowdoin after his seventeenth expedition into the north country and told of having encountered an ice pack five thousand square miles in area.

"It was the largest ice pack I have ever seen," said MacMillan. "Although we were caught in the pack for eight days, there was no real danger." The Bowdoin, with a crew composed in part of college youths, ran into the pack while en route from Baffin Land to Cape Chidley, on the Labrador coast.

The most northerly point reached was Etah, in northern Greenland, within twelve degrees of the North Pole, MacMillan said. There he renewed his acquaintance with Ootak, only surviving Eskimo member of the small band of hardy explorers who made the final dash to the North Pole with Admiral Robert E. Peary nearly thirty years ago.

POLAR AIR ROUTE DOUBTED

MacMillan Says Cold and Fog Make It Impractical

MONTREAL, May 5 (Canadian Press).—The air route across the top of the world is impractical because of the Arctic cold, the long night through half the year and the constant fog rising from leads in the ice floes, Commander Donald B. MacMillan, Arctic explorer, said in an interview today.

Speaking of his experiences in the North, Commander MacMillan said that Eskimos showed indications of Mongolian origin. Eskimo children, like the Japanese and the Mongols, he said, had dark pigment spots about the size of a ten-cent piece along the spine. These marks disappeared at the age of 6. Indians, on the other hand, never had such birthmarks.

CANADA TRIES ESKIMO AS REINDEER HERDERS

Moves Anew to Solve Clothing and Food Problems in Arctic

OTTAWA, Oct. 8 (Canadian Press).—Canada's efforts to put the 2,500 Eskimo of the Western Arctic on a permanent basis as regards food and clothing, which has already taken eight years and cost more than $250,000, reaches another milestone next month when a herd of 800 reindeer will be turned over to four Eskimo families

Eight years ago a herd was purchased in Alaska by the government and the long drive to the reserve on the Arctic coast east of Mackenzie River Delta began. Five years later, in the Spring of 1935, the herd, slightly under 2,500 strong, arrived at its destination, travel-worn and after almost incredible hardships had been suffered by the deer and herders.

, Dr. J. A. Urquhart, who has supervision over the herd, has arrived in Ottawa and yesterday he presented his first oral report of the progress of this national undertaking.

In addition to reindeer slaughtered for food to supply the herders and some 200 slaughtered each year to provide food for Northern missions, the herd has increased to about 5,000 in three years.

The average weight of the herd today is at least fifteen pounds greater than when the reindeer arrived and they are much improved in general fitness. Weight of the steers ranges from 165 to 170 pounds and the does from 145 to 150 pounds.

Owing to the highly developed herd instinct, it is impossible to segregate fewer than 800.

Experience of the last three years has enabled the herders to protect the animals from warble fly, foot-rot and wolves, three enemies of the reindeer.

Eskimo have shown an aptitude as herders for the government and Dr. Urquhart expects they will be successful herders on their own.

Penguin 'Farm' in Norway

OSLO, Norway (Science Service).—Penguins have proved so popular in zoological parks that a penguin "farm" has been established by Norwegian ornithologists on the island of Roste, in the Lofoten archipelago off the northwest coast of Norway. A number of penguin pairs, brought from the Antarctic regions by whalers, have already become established there.

HOLDS ANCIENT OBJECTS

Canada Claims Archaeological Finds in Her Territory

OTTAWA (Canadian Press).—No longer will archaeologists and explorers be able to excavate Eskimo ruins in Northwest Canada and carry off what they find. New regulations require that all archaeological specimens will be submitted to the Dominion Government. Anything required by the National Museum of Canada will be retained and the remainder will be returned to the finder on the condition that they be permanently deposited in some public institution, in Canada or elsewhere, where they will be available for study.

At one time the rule in archaeological research was "finders keepers." However, the League of Nations recommended to all countries in which excavation work was likely a standard set of rules, the chief aim being to ensure to each country the retention of anything dug up in its own domain.

RUINING ESKIMOS' TEETH

White Man Doing Good Job at It, Says Dentist

EDMONTON, Alta. (CP).—The white man is "making a good job of ruining the Eskimos' teeth," Dr. Roy H. Ellis, Assistant Professor of Clinical Dentistry at University of Toronto, said here after arriving by airplane from Aklavik, Northwest Territory.

Eskimos who live on dried fish and dried meat have fine teeth but those who subsist on white men's food have the same dental troubles as white men, Dr. Ellis said.

He reported the finest teeth he examined belonged to Eskimos from Banks Island in the Arctic Ocean northwest of the Mackenzie River mouth. Dr. Ellis said they came to Aklavik in a $23,000 schooner owned by an Eskimo who made his money selling furs.

BOY IS ESKIMO AND ZULU

15-Year-Old Lad in Far North Has Unusual Parentage

A lad, whose name is Kuploo, has probably the most incredible parental assortments that any of old earth's racial melting-pots can boast. His father is an Eskimo, his mother a Zulu, reports Science Service.

It happened this wise: The Hudson Bay Company's agents at Churchill, on Hudson Bay, found a big deposit of blue clay that looked like the stuff they take diamonds out of down in South Africa. They asked the South African diamond people if they could send up a good diamond prospector. A skilled Zulu prospector was sent, and he brought his wife with him.

There turned out to be no diamonds, but before the Zulu couple could get back home the man fell sick and died. The woman, not caring to go back to her people a widow, remained in the North and married an Eskimo.

GETS BEARDED SEALS

Field Museum Receives Four From Northern Alaska

Four excellent specimens of bearded seal collected in the Cape Prince of Wales region in Northern Alaska have been presented to the Field Museum of Natural History by Carl Dreutzer, of Chicago.

These seals are known to the Eskimos as "oogruks," and zoologists designate them by the scientific name Erignathus barbatus. They are notable for their long, catlike whiskers.

Included in Mr. Dreutzer's gift are an adult male nine feet long, an eight-foot female, a yearling, and a cub of the 1938 breeding season. Mr. Dreutzer reported that he has two specimens of ribbon seal en route to Chicago for presentation to the museum.

POLAR BEAR IN STONE ON BOWDOIN CAMPUS

The gift of Bowdoin's Class of 1912 at its twenty-fifth reunion a year ago has just arrived at the college. It stands in front of the Sargent Gymnasium and weighs fourteen tons. It is the work of the sculptor Frederick G. R. Roth of Englewood, N. J., and was carved from a solid block of granite by Frank Camolli of Westerly, R. I. The polar bear towers twelve feet above the ground. He is standing on a cake of ice, on top of the world. He is facing west but his head is turned toward the north.

The significance of a statue in the form of a polar bear as a gift from the Class of 1912 lies in the fact that it was during their freshman year that Peary, '77, discovered the North Pole.

MEMORIAL TO PEARY IS ERECTED IN MAINE

Mountain Range Finder Placed on Hill Back of Fryeburg

FRYEBURG, Me., Aug. 17.—The family of Admiral Robert E. Peary, discoverer of the North Pole, presented to the town today a range finder on Jockey Cap. Mrs. Marie Peary Stafford, daughter of the explorer, told the assembly that while he lived in Fryeburg her father was "free from the struggle that carried him along on his career."

"It was here in Fryeburg that he seemed to enjoy a period of perfect peace," said Mrs. Stafford.

The presentation was made an outdoor event. The afternoon exercises were held in the Congregational Church, where Robert E. Perry Jr. paid tribute to his father.

As a surprise at the church services, the audience heard the voice of the late Admiral. It was a phonograph record on which Admiral Peary had recorded an address that he made in August after returning from the trip on which he discovered the Pole.

For two years after his graduation from Bowdoin College in 1877 Admiral Peary made his home in Fryeburg. The memorial takes the form of a mountain finder and is located on the summit of a large granite hill on the border of the town. The bronze finder was made from an original profile of the White Mountains, drawn by Admiral Peary himself in 1879. The memorial was designed by Felix Arnold Burton, Boston architect, who also designed the Peary monument erected in Greenland in 1932.

Ice Holes 90 Feet Deep

VIENNA (Science Service)—Deep, well-like holes in glacial ice, sometimes extending downward ninety feet, are caused by black bodies on the ice surface, says Dr. Fritz Tollner, Vienna glaciologist, whose studies show that 60 per cent of the sun's radiation can penetrate to a depth of ninety feet in the ice, when dark minerals are on the surface. Skylight, as well as direct sunlight, can melt ice under black bodies, his studies indicate. Ice structure, in addition to black materials on the surface, is a factor in production of the wells. This structure is prevalent in the Arctic ice, but not in Alpine ice.

Record of De Long, Arctic Explorer, Reaches Moscow From Island Crag

Notes Left in Cylinder 57 Years Ago by American Who Perished Are Believed Readable, Though Damaged by Water

MOSCOW, Oct. 19.—The diary left by Lieut. Comdr. George Washington De Long on Henrietta Island, in the Arctic Circle fifty-seven years ago, before the American explorer and most of his party perished, was brought to Moscow today by L. F. Mukhanoff, head of the Soviet scientific party that discovered it last June.

The diary was in the copper cylinder in which Lieutenant George W. Melville, a member of the De Long group, placed it under a rock cairn before he continued to Siberia, where he was rescued by natives. It will be taken in the next few days to Leningrad, where experts of the Arctic Institute will attempt to decipher it.

Melville apparently had failed to seal the cylinder perfectly, and water entered and reduced the diary to pulp. Mr. Mukhanoff said, however, at the headquarters of the Northern Sea Route Administration that he believed it would be possible to make out much if not all of the diary.

He did not attempt to open it for fear of damaging it, he said, but he could see characters in Commander De Long's hand showing in reverse through the thin paper on which the diary was inscribed.

The cylinder was found by accident by a biologist of the Soviet expedition who was hunting lichens. It was in a cleft in a rock 250 feet above the sea. Near by the expedition found a flagstaff that Commander De Long had left flying the American flag. The staff also was brought to Moscow. No trace of the flag was left, but bits of its ropes were found, some distance away, whither birds had evidently carried the rope strands as material for building nests.

The Soviet party also brought back three empty shotgun shells left by the American expedition.

Lieutenant Melville in his account of the tragic adventure told of leaving the cylinder under a cairn. The Soviet expedition hunted in vain for this cairn—and when they stumbled on the cylinder they found it partly crushed and scarred by the toothmarks of a polar bear. They believed the curious bear destroyed the cairn and chewed at the cylinder.

Lieutenant Melville also told of leaving a zinc box but this was not found.

The cylinder is about eighteen inches long and five inches in diameter. The diary was closely folded and inserted in it. It is impossible to estimate how many pages it contains, but it seems to be quite a bulky document.

Lieutenant Melville had said the expedition was unable to attain a higher point than that on which the flag and cairn were placed because of the rugged nature of the rocks. Mr. Mukhanoff told with a smile today how his expedition had taken this up as a challenge and had succeeded in reaching a point more than a thousand feet high, where atop a glacier they had to build a meteorological station during the polar night.

Mr. Mukhanoff brought all of his seven-man expedition back to Moscow except a radio operator, who remained on Henrietta Island with three other scientists. The Mukhanoff party left Henrietta Island Aug. 17 aboard the Soviet icebreaker Okhotsk and arrived at Vladivostok via the Bering Strait after fifty-five days at sea. They completed the journey by the Trans-Siberian Railroad.

Henrietta Island is one of the De Long archipelago of small islands north of Eastern Siberia far within the Arctic Circle. It was near there that Commander De Long's ship, the Jeannette, for which another island of the same archipelago was named, was crushed in the ice and sank on an attempt to reach the North Pole via Bering Sea in 1881.

Commander De Long and part of the expedition reached Siberia in a small boat, but all died except two who had gone ahead to hunt a settlement. Their bodies were found by other survivors and returned to the United States.

The Jeannette sailed from San Francisco in 1879. She drifted in the Arctic ice for a year and ten months before she broke up. The party of thirty-three set out for land in three boats. One was lost. Another, containing Commander De Long, reached the mouth of the Lena River, but all the party, except two seamen, died of starvation.

The third boat, in charge of Lieutenant George W. Melville, also reached the Lena River and recovered the bodies of their companions, which were brought to New York for burial.

A diary written by Commander De Long was published in 1883 by his widow as "The Voyage of the Jeannette."

SOVIET SCIENTISTS NAMED TO KEY JOBS

MOSCOW, May 21 (AP).—Ivan Papanin, commander of Soviet Russia's Arctic ice floe campers, has completely shaken up the office management of the Northern Sea Route Administration, newspapers disclosed today.

Mr. Papanin was made second in command to Dr. Otto J. Schmidt, head of the government bureau that directs Russia's vast activities in the Arctic, two months ago.

The other three campers with Mr. Papanin have received key posts. Ernest Krenkel, it was disclosed, has been made chief of Arctic radio stations and Peter Shirshoff director of the All-Union Arctic Institute at Leningrad. Eugent Federoff has received every opportunity for scientific research.

Soviet Appoints Eskimo To Rule Wrangel Island

By The Associated Press.

MOSCOW, Sept. 3.—The Comsomol Pravda, organ of the Soviet Russian Young Communist League, announces that an Eskimo named Taian—mighty hunter, able bookkeeper and mechanic—has been named Governor of Wrangel Island in the Arctic.

Taian killed twenty-nine female bears with cubs in a single season and reorganized fox-hunting on Wrangel Island so that 416 blue foxes were trapped in one Winter.

His wife is learning to operate a radio station.

SOVIET EXPERTS TEST 'COLD POLE' IN SIBERIA

Gushing Springs in 94° Below Stir Scientific Speculation

The coldest region on earth is the Republic of Yakutsk in the remote stretches of Eastern Siberia. A temperature of 94 degrees below zero has been recorded. Yet even in the coldest months water gushes forth over the thick surface ice.

Why water should break all the physical rules in this queer fashion has been the subject of considerable speculation on the part of the experts of the American Geographical Society. Some hold that there must be deep underground ice dams behind which the water backs up and creates pressure, as in any reservoir, so that ultimately the water breaks through the bubbles to the surface.

To explain these strange springs near lakes or rivers another hypothesis is involved. It is supposed that a shell of ice forms not only on the surface of a body of water but, contrary to all physical law, down along the banks and across the bottom. The water in the middle remains liquid, as separate from the ice as a yolk is from the white of an egg. As the cold grows more intense the shell of ice thickens. Expansion exerts terrific pressure on the still liquid core of "yolk." Eventually the shell cracks and the water spouts forth.

So powerful is the effect of this subterranean pressure that cracks ten feet or more are formed in the ground. Similar cracks have proved a baffling problem in building the transsiberian railroad. Rails and ties are so frequently displaced that the road is in a state of constant repair which amounts to rebuilding.

Since the Seventies meteorologists have placed the "cold pole" at Verkhoyansk Siberia. But, according to Professor Obruchev in the American Geographical Review, Oimekon should be still colder. He proved to be right.

Verkhoyansk and Oimekon both lie in basins surrounded by almost unbroken mountain ranges. The accumulation of cold air in the basins accounts for the low temperatures.

The "cold pole" is the object of Soviet scientific attention. Its industrial conquest has been planned by Professor Otto Schmidt, head and front of the great organization which has been systematically studying and exploiting Russia's northern resources for the last ten years.

SOVIET WILL BUILD ARCTIC FUEL BASES

Expansion of Institute's Work on Northern Sea Route Is Announced by Papanin

MOSCOW, Oct. 15.—The research work of the Arctic Institute of the Northern Sea Route Administration is being radically reorganized

Under the direct leadership of Pytor Shirshoff, head of the institute and also a member of the Papanin expedition, the institute will concentrate on the organizing of fuel bases at known coal and oil deposits in the Arctic. The plan is to make the Arctic region, with its extensive shipping, self-supporting as far as fuel is concerned and to develop numerous Arctic ore deposits.

One such deposit, a great nickel field on the Kola Peninsula, was put into commercial operation this month with 40,000 workers in mines and the giant smelting plant. This is expected to make the Soviet Union entirely free from foreign imports of this essential industrial metal.

Base for Arctic Planes

A new air base, equipped with special Arctic planes, will also be established during the coming year to assist navigation and to avert the danger to ships of being caught in the ice. That happened to almost the whole of the Soviet ice-breaker fleet and half its Arctic merchant fleet last year.

New Arctic ports will be built Six new ice-breakers are already built and three are nearing completion. They will be in full service next year in addition to about a dozen veteran ice-breakers.

The government has authorized the construction of a new building at Leningrad to house the Arctic Institute.

NEW SOVIET ATLAS CONTAINS RARE DATA

First Volume Reaches Washington and Excites Mapmakers

WASHINGTON (Science Service).—Featuring maps of the North Polar regions which include data gathered in recent years principally through the systematic efforts of Soviet explorers and geographers, the first volume of a monumental new world atlas has been issued in Moscow by a special publishing board set up by the Soviet Government.

Printed and bound in sumptuous fashion and expected to contain, when completed two years hence, the greatest variety of maps ever assembled in one publication, the new atlas has excited the attention of American geographers and mapmakers here. Data and maps showing polar explorations until two years ago, as well as a complete depth chart of the Barents Sea, until recently a poorly explored spot on the map, are included in the one volume that has reached Washington.

SHIPS BEGIN 2D YEAR IN GRIP OF ARCTIC ICE

One of 3 Soviet Vessels Reports She Is 500 Miles From Pole

MOSCOW, Oct. 23 (AP).—Captain Constantin Badigin of the Soviet ice-breaker Sedoff radioed today that his crew was beginning its second Arctic night in good shape about 500 miles from the North Pole.

The ice-bound crew marked its first anniversary of involuntary wandering in the grip of Arctic ice. It was just a year ago that the Sedoff and two other ice-breakers, the Sadko and Malygin, were caught by the northern Winter of darkness near the New Siberian Islands.

Since then the Sedoff has drifted 1,500 miles—520 of them to the north. A few days ago she reached 84 degrees and 25 miuutes north latitude and was reported today at 83 degrees 57 minutes north, indicating that a southward drift may have begun.

Captain Badigin reported his men kept occupied with frequent weather observations and the necessary upkeep of the vessel.

They have established an emergency camp and supply depot on an ice floe 100 yards from the Sedoff where they have unloaded provisions to sustain them for four months if it becomes necessary to abandon the ship.

Although the message from the Sedoff made no mention of the other vessels, the Sadko and Malygin evidently still were locked with the Sedoff in the frozen Arctic.

Last January an aerial expedition was organized to carry provisions to the ships and take off all but skeleton crews, which remained aboard to carry on scientific observations the evpedition had been making. Last April 29 three big Soviet airplanes reached the vessels and removed 184 men, women and children to Tixy Bay on the northern Siberian coast. They took provisions for two years for the thirty-three men left on the ships.

Soviet Planes Save 184 On Drifting Ice Breakers

Skeleton Crews Stay on Ships Caught in Arctic October 23

MOSCOW, April 29 (AP).—Three big Soviet airplanes have rescued 184 men, women and children from three ice breakers which were drifting helplessly with their convoy ships into the North Polar Basin.

Pilots of the aircraft telegraphed Josef V. Stalin today that they had landed the refugees at Tixy Bay, on the northern Siberian coast. The ice breakers—the Sadko, Malygin and Sedoff—were caught in an ice-pack in Arctic waters last October 23.

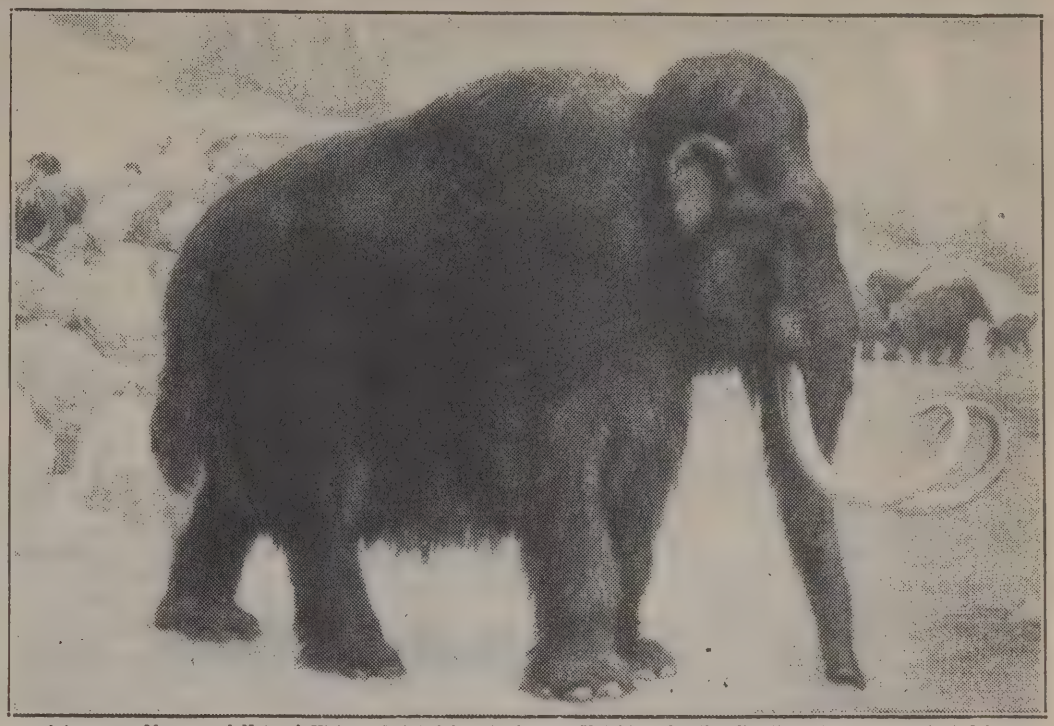
The pilots—G. K. Orolov, A. D. Alexeyev and P. G. Golovin—reported skeleton crews of thirty-three men were left on board the ships, with enough supplies for two years.

Russia Building Ships To Join Arctic Fleet

MOSCOW, April 26.—The construction of two of the largest ice-breakers in the world—named the Joseph Stalin and the Lazar Kaganovitch—is nearing completion in Leningrad shipyards. After tests of the engines, winches, pumps and other mechanical parts, the ice-breakers will make brief sea tests and then go to the relief of icebound Soviet ships in the Arctic Ocean.

Those ships include half of the Soviet Union's large fleet of Arctic freighters, carrying coal and other necessities for arctic stations and virtually all of the Soviet icebreakers. Many passengers, including women and children, are marooned on them.

The new icebreakers are equipped with catapults for launching planes, which will collaborate in relief of the stranded ships and the regular work of guiding freighters through the northeast passage connecting the Atlantic and Pacific. Each ice-breaker also will carry three motor boats and seven smaller tenders, as well as a radio station capable of exchanging messages with any station in the world and scientific laboratories.



© American Museum of Natural History. Painted by Charles R. Knight under the direction of Henry Fairfield Osborn

A painting of the northern or woolly mammoth which inhabited North America during the ice age

Soviet Plans Bathysphere For Sea Bed in the Arctic

By The Associated Press.

MOSCOW, April 2.—Soviet Russia, having explored the Far North from its ice floes and skies, disclosed plans today to send scientists into its depths.

A bathysphere, it was announced, is being designed for studies of the herring and cod fishing beds at the bottom of the Barents Sea. It is planned for a crew of three, with four large windows through which a motion-picture camera could photograph underwater life.

The bathysphere, it was said, would have a diameter of 5.9 feet with walls more than an inch thick, and would weigh four and a half tons.

Russia to Bring Mammoth Out Of Polar Icebox

3-Ton Crate, Big as Trolley Car, Built for 20,000-Year-Old Carcass Found Last Fall on Arctic Isle

By Joseph Barnes

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MOSCOW, May 21.—A refrigerated ship carrying an empty box bigger than a trolley car will leave Vladivostok next month to bring back the carcass of the mammoth found last October on Wrangle Island, in the Arctic Ocean, north of the easternmost tip of Siberia.

The extinct prehistoric elephant, weighing four tons, will be moved intact with seven tons of the frozen crust in which it has been preserved for more than twenty thousand years. At the same time, it was learned that despite precautions taken by the Soviet party wintering in the Arctic Ocean, which discovered the carcass, some of its still fresh meat had been eaten by wolves. Part of the head and trunk had been devoured, but the entire body, covered with four-inch-long hair, was reported whole.

Dr. Hekker, of the paleontology institute of the Soviet Union's Academy of Sciences will head the expedition to recover the carcass. He says the condition of the beast's nine-foot spiral tusks is still unknown. The animal was found in a standing position with head lowered and with only the top of the head and the ridge of the back emerging from the eternally frozen mud which had covered it since the end of the glacial period.

The box, constructed for moving the mammoth, weighs three tons. A special raft of three flat barges will ferry the carcass from shore to ship.

Only One Other Discovered

The Wrangel Island mammoth is believed by Soviet scholars to outrank the Bereskova mammoth, which was discovered in 1801 and is the only other large prehistoric carcass ever found in the Arctic refrigerator. Now in a Leningrad museum, the Bereskova mammoth measures 16 feet 4 inches from head to tail and 9 feet 4 inches high, and has tusks 9 feet 6 inches long. The dogs of the expedition which discovered it ate large portions before it could be protected.

The hairy mammoth ranged Siberia and northern North America during the glacial period. It differed from the existing Indian elephant, to which it was closely related, in that it had long, dark hair and a dense, woolly fur to protect it from the cold. It also had well-developed teeth and two extremely long tusks, sometimes more than ten feet long, which curved upward and outward with the tips directed toward each other.

ARCTIC ICE CUT BY JET

Chizhikov, Soviet inventor, has devised a method of cutting Arctic ice with a jet of water under a pressure of 375 pounds to the square inch. His machine looks like a railway car, travels on wheels and cuts ice up to a thickness of seven feet. The invention is expected to facilitate the work that icebreakers must now do. At present these heavy ships ride up on the ice and break it down by sheer weight. After which they are laid up for repairs.

Bent on exploiting the riches of the frozen North, the Soviet Academy of Sciences has established a laboratory to determine the physical properties of the soil at temperatures as low as minus 150 degrees, which is far lower than this planet ever reaches. In addition, 10,000,000 square kilometers of perpetually frozen ground are to be mapped and classified into temperature zones.

4 Russians Who Quit Arctic Ice Left 55 Red Stations Still There

MOSCOW.

With the removal of Ivan Papanin and his three companions from the block of ice on which they had floated from the North Pole to Greenland, the Soviet Union's total number of Arctic weather stations decreased for the first time. Station 56, as the North Pole camp was officially known for nine months, disappeared into the North Atlantic, leaving the Northern Sea Route Administration with fifty-permanent stations inside the Arctic Circle.

During the spring, the best flying season in the Soviet Arctic, this number is expected to increase again. Officials of the administration have refused to make public details of their plans. But they include a series of new floating stations, some of which will be established beyond the North Pole to drift over it, and a strengthening of the present network of permanent weather stations.

Four Stations Before the War

Before the war Russia had only four meteorological stations equipped with radio in the Arctic. The most eastern of these was on Dickson Island. From the mouth of the Yenesei River to Alaska, the area in which Soviet interest is now concentrated, there was not one station.

A station at Matochkin Shar, in the middle of the crescent-shaped island of Novaya Zemlya, which lies off Russia, was established in 1923. It was the first Soviet invasion of the Arctic, and for a long time the most northern weather station in the world. It was to be followed, according to plan, by another at Cape Hope, on the northern tip of the same island, at 77 degrees latitude. But Professor Otto Schmidt, head of the Northern Sea Route Administration, in 1929 exceeded the plan by locating a station at Tikhi Bay, on Franz Josef Land, 80 degrees north and thus only 10 degrees from the pole.

Ernest Krenkel, radio operator of the North Pole station during the last year, was sent by Professor Schmidt in August, 1929, to start a radio station at Tikhi Bay. A few months later he was talking to Commander Richard E. Byrd in Little America, as close to the South Pole as Krenkel was to the North Pole.

The Cape Horn station was established in 1931, but the real impetus to Soviet weather observation came in the next year when the ice breaker Sibiriakov ploughed across the top of the world to the Pacific Ocean in a single season. The Kremlin itself became Arctic minded; the Northern Sea Route Administration was founded with subsidies on an imperial scale; the Arctic became the Soviet Union's new frontier.

Training for Observers

Papanin was sent to Tikhi Bay in 1923 to make the fledgling station there an important weather observatory. E. K. Fedorov, physicist of the North Pole expedition last year, was his chief assistant. P. P. Shirshov, marine biologist and fourth of the quartet at the North Pole, was meanwhile learning his trade first on the Sibiriakov and then on the Chelyuskin, which was cut in two by ice when it tried to duplicate the feat of the Sibiriakov two years later.

The present network of fifty-five permanent weather stations is close to the desirable maximum, according to Professor V. Y. Vise, head of the Arctic Institute in Leningrad. He recently has recommended concentration on floating stations, directed into the "white spot" of the central Arctic map, where weather conditions still are unknown.

One of these is likely to be sent, this year or next, to what the Russians call the "pole of inaccessibility." This is at 83 degrees 50 minutes north and 160 degrees west. It is close to the center of the "polar cap" of cold air which dictates weather conditions over much of the Soviet Union and, more directly, flying conditions over the entire Arctic.

Other floating expeditions are likely to follow the route of Papanin's camp, chiefly to check his observations of the North Pole area over a longer time. Professor Schmidt has suggested that the floating camps may be established by airplanes on floes beyond the North Pole. If they are placed inside the known ice drift they should greatly lengthen, according to Soviet plans, the period during which weather observations can be made in the immediate vicinity of the pole.

Moscow Gives Up Hope For Flyers Lost a Year

MOSCOW, Aug. 11 (UP).—Tass, official Russian news agency, announced tonight that the Soviet government had given up hope of finding the N-209, the plane in which the famed Soviet flyer Sigismund Levanevsky and a crew of five started across the North Pole to America on August 12, 1937.

The announcement said a monument to the lost flyers would be erected in Moscow, that various schools, institutions and plants would be named for them, and that liberal pensions would be accorded their families.

Elks Camel of Arctic

MOSCOW (AP).—The Bolshevists are encouraging the domestic use of elk for farm and industrial work in the far North. The All-Union Arctic Institute recently completed experiments giving rise to the belief the elk may be successfully used as the camel of the Arctic.

Russian Flies Over Pole In Hunt for Levanevsky

By The Associated Press.

MOSCOW, April 4.—Captain J. D. Moshkovsky made a round-trip flight to the North Pole from Rudolf Island today in fruitless search for Sigismund Levanevsky and five companions, lost last August in an attempted transpolar flight to the United States.

Moshkovsky took off from the island base, 560 miles from the pole, at 3 A. M. and crossed the pole at 7:20 A. M., having flown across the Greenwich meridian. He returned to Rudolf Island at 2:05 P. M.

Although visibility was good, he saw no trace of airplane wreckage.

SOVIET PARTY VOIDS SOME POLAR MYTHS

Theories of Arctic Continent and Abysmal Temperatures Exploded by Findings

It is too early as yet to evaluate the results of the famous drifting expedition of the four Soviet scientists who voluntarily marooned themselves on a floe. Nevertheless, Tass, the Soviet telegraphic agency, presents in various reports the opinions of leading Russian scientists on the significance of the greatest feat ever performed in the history of Arctic exploration. This preliminary survey leaves no doubt that Professor Otto Schmidt, leading spirit of Russia's conquest of the north, is right in claiming that the four men on a floe did more in nine months than all previous expeditions put together.

"Papanites" it is now the fashion to call the four Arctic heroes in Moscow. For Nikolai Papanin was their leader. The other members of the expedition were Krenkel, Shirshov and Fedorov.

First of the illusions to be shattered is that which pictures the Arctic ice fields as a mass of hummocks and jagged heaps. It turns out that there are many natural landing fields in the Arctic, a fact which means much to the companies that believe transpolar flights between the United States and Europe are commercially possible.

The old myth of an Arctic continent is exploded once and for all. Where land should have been found the sounding lead touched bottom at 4,290 meters (2.68 miles).

"All past expeditions had reported different speeds for the drifting ice," comments Schmidt. "Papanin's station moved more rapidly than the fourteen miles a day predicted by the highest estimate. The speed varied from ten to twenty miles a day."

The problem of ice drifts is by no means settled. "The flow of ice from the Arctic Ocean is a phenomenon which must be thoroughly studied if we are to forecast ice conditions six months in advance," according to Schmidt.

It was supposed that the surface waters in the Arctic Ocean swirled in a circle around the Pole. The four Soviet scientists should therefore have rotated around the Pole like the moon around the earth. From May 21 to July 20, 1937, the floe did drift about uncertainly. Then it began to move southward. By the middle of November it was near Greenland. Other floes participated in the procession. It soon became apparent that a powerful current was flowing southward into the Atlantic Ocean. Some oceanographers had suspected as much. Now the suspicion is verified. Professor V. V. Shuleikin estimates that in a day about 10,000 tons of icy water pour into the Atlantic Ocean for each square meter of cross section.

Cause of Floe Drift

What made the floe drift? Wind. A sort of "law" has been established, a law which correlates the velocity of the wind with the rate of drift. Professor Shuleikin says that the "drift of the ice fields usually equals about 3 per cent of the velocity of the wind."

Driven by the wind the ice conveys its movement to the surface water as far down as 400 feet. When the wind changed the direction of drift changed too. At times Papanin and his men actually moved back north.

"At all stages of the drift the ice fields traveled under the effect of the wind alone," says Shuleikin. "So with the currents under the ice. They, too, were caused by the wind. There are no other currents of any other origin along the whole expanse of ocean covered by Papanin's floe." The origin of the East Greenland current is now definitely established. It is a wind and drift current.

In addition to the cold southward current there is a deeper current, a current which is warm and which flows northward into the Arctic Ocean. This warm underlying current carries with it plankton, crayfish, worms, fish and other forms of marine life. Even birds and bears were seen. The birds throve on what they could pick up on the surface water; the bears fished.

Years ago Nansen had written that "the perpetually ice-covered central part of the Arctic Ocean may be regarded as a desert in the sea." He proved to be wrong. Professor V. G. Bagorov and Shirshov had decided even before the airplanes ever set out for the historic floe that life would be found in the Arctic Ocean. But what kind of life? The answer has been found.

Professor S. S. Kovner, assistant director of the Institute of Theoretical Geophysics of the Academy of Sciences holds that "for the first time there have been obtained data on the temperature of the air, on winds and their direction and force in the unexplored part of the Arctic Ocean." This information has been successfully correlated with American observations, with the result that safe air routes were plotted for Soviet fliers in the north.

Professor Molchanov, a Soviet leader in meteorology, finds the weather observations of the highest importance. "They lead to the conclusion that even in the very center of the Arctic such low temperatures as for instance in Yakutia (Siberia) are not encountered," he observes. "The minimum temperatures recorded were not lower than 30 to 35 degrees below zero C, whereas in Yakutia the temperature reached 50 degrees below zero C in December, 1937." Winds are admittedly high in the Arctic; calms rare.

PEARY'S AIDE DIES IN OBSCURITY AT 74

Stricken Alone in Boston, He Is Identified, After 3 Days, as George Clark

BOSTON, Sept. 2 (AP).—George Clark, who died alone in his South End room Tuesday, today was identified through the efforts of Medical Examiner Timothy Leary as a member of Admiral Peary's Greenland expedition.

A gold watch, virtually Mr. Clark's only possession, bore an inscription showing it was presented to him by F. W. Stokes of New York. Dr. Leary wrote to Mr. Stokes in an effort to trace relatives and Mr. Stokes replied that he and Mr. Clark were fellow-members of the polar adventure. Mr. Clark was 74 years old.

Mr. Stokes, the artist, who made four trips with Admiral Peary, said last night that Mr. Clark and he were with the explorer fourteen months in Greenland in 1893 and 1894.

Mr. Clark was a taxidermist and described by Mr. Stokes as a man crammed with knowledge about natural history. In addition, he was likable and had a keen sense of humor. As an illustration of his charming personality, Mr. Stokes related how Mr. Clark had won Admiral Peary's favor in his first meeting with the explorer.

Reading about Mr. Peary's contemplated trip to Greenland, Mr. Clark sought the explorer out and asked him to take him along. While he had all the qualifications for the post as taxidermist, he was unknown to Admiral Peary, but, nevertheless, the explorer, liking him, signed him on as a member of the expedition.

During the time in Greenland, Mr. Clark and Mr. Stokes formed a friendship that lasted until Mr. Clark's death. Only two weeks ago, Mr. Stokes related, he and Mr. Clark went on a camping trip to Stonington, Conn.

After the holiday Mr. Stokes took Mr. Clark to a railroad station at Westerly, R. I., and saw him off to Boston. That was the last time he saw him alive. The artist said that Mr. Clark, except for an ulcerated foot, was in the best of health and spirits.

Mr. Stokes said that Mr. Clark's father, Theodore E. Clark, 92 years old, a Civil War veteran, was living in Boston.

Brophy, Ex-Aid to Byrd, Believed Heart Victim

MINNEAPOLIS, May 28 (AP).—Police today said the body of a man found dead in a downtown hotel May 18 had been identified as that of a Richard Brophy, of New York, and they were investigating the possibility it might be that of a man who accompanied Admiral Byrd on his first South Pole expedition.

The body was identified through fingerprints sent to the Federal Bureau of Investigation at Washington. Death was due to natural causes, the coroner reported.

Grave of Georgi Sedoff Believed Found in Arctic

By The Associated Press.

MOSCOW, July 3.—Discovery of what is believed to be the grave of Lieutenant Georgi Sedoff, Russian explorer who died in 1914 while trying to reach the North Pole, was reported today by radio from the Soviet camp on Rudolf Island, 560 miles from the North Pole.

Fragments of a Czarist Russian flag and bits of canvas were found at a heap of stone near Cape Auk.

Lieutenant Sedoff started his polar expedition in 1912 in the ship Sviatoi Foka. He died while trying to reach the Pole afoot from Franz Josef Land with two companions after spending two Winters on the ice.

DR. O. H. TITTMANN, SCIENTIST, IS DEAD

Directed Marking of Line for Canada and This Country—Checked Peary's Claims

LEESBURG, Va., Aug. 21 (AP).—Dr. O. H. Tittmann, former head of the Geodetic Coast Survey and president of the National Geographic Society, 1915-19, died in his home here today at the age of 88.

In the Service 48 Years

Otto H. Tittmann retired as superintendent of the United States Coast and Geodetic Survey in 1915 after forty-eight years in that branch of the government service, during which he became widely known as an expert in his chosen work.

His superintendency of the survey began in 1900, when he was named to succeed Dr. Henry S. Pritchett, who resigned to become president of Massachusetts Institute of Technology. Previously, Dr. Tittmann had served as assistant in charge and as assistant superintendent. He served the United States in its relations with other nations on several occasions. He had been United States delegate to the International Geodetic Conference held in Berlin in 1895, and the American representative at negotiations for the demarcation of the Alaskan boundary under the 1899 agreement with Canada.

He became United States Commissioner of the Alaskan boundary in 1904, and of the northern boundary, excepting the Great Lakes, in 1908, holding the latter position until his retirement in 1915. It was under Dr. Tittmann's direction that surveys covering 4,300 miles resulted in the complete marking of the line separating the United States and Canada.

When Admiral Peary discovered the North Pole, Dr. Tittmann was one of a committee of three scientific men called upon to pass upon the proofs submitted by the explorer. In 1926, while in retirement at Leesburg, Dr. Tittmann noted that the results of the Byrd aerial expedition to the North Pole had substantiated Peary's observations.

31 SAILORS ARE LOST IN WRECKS IN ARCTIC

Norwegian Fishermen Missing —British Ship Hits Rocks

OSLO, Norway, Oct. 2.—Thirty-one lives have been lost in two recent shipwrecks in Arctic waters, it was learned tonight.

Nothing has been heard of a fishing expedition led by a Norwegian captain, Hallvard Devold, that left Aalesund on July 17 for the southeast coast of Greenland and were expected back at the beginning of September. No hopes are entertained for the survival either of Captain Devold or his fifteen companions, in iview of the terrific storms that have been raging in the Arctic.

From Tromsoe it is reported that the British trawler San Sebastian, out of Hull with a crew of fifteen, struck a reef and was broken to pieces off Bjoernde, south of Spitzbergen on Thursday, at the same spot where Roald Amundsen disappeared. Two bodies were recovered on the bridge by the Jason, a Norwegian salvage ship.

It was reported that a man was seen afterward attempting to climb tremendous rocks near the scene, but a search by Norwegian meteorologists failed to find either survivors or bodies.

Olaf Swenson, '14 Hero Of Arctic, Is Found Slain

Fur Trader Who Rescued 11 Believed Shot Cleaning Gun

SEATTLE, Aug. 24 (AP).—Olaf Swenson, fifty-five-year-old Arctic fur trader, who rescued eleven members of the Stefansson expedition from Wrangel Island in 1914, was found shot dead today in his office. Detectives said it appeared that a rifle, found near by had been discharged accidentally while Swenson was cleaning it. Coroner Otto H. Mittelstadt said there would be an inquest.

Swenson passed many winters in the Arctic as a fur trader. In 1929 he and one of his daughters, Marion, then seventeen years old, became world figures when the trader's fur ship, the Nanuk, became frozen in the ice off North Cape, Siberia. Pilot Carl Ben Eielson and Earl Borland, his mechanic, lost their lives in an attempt to fly from Teller, Alaska, to the Nanuk for a load of furs.

Swenson's wife and two daughters survive.

J. R. Lucas Dies at 71; 'Bishop of North Pole'

TORONTO, Oct. 8 (CP).—Word reached here today of the death at Worthing, England, of the Right Rev. J. R. Lucas, former Anglican bishop of Mackenzie River and honorary warden of the Church Army in Canada. He was seventy-one years old.

Bishop Lucas, who was known to his fellow clerics as "Bishop of the North Pole," had a diocese of 600,000 square miles inhabited chiefly by Indians and Eskimos. Elected bishop in 1912, he resigned in 1926 because of his wife's ill health, and thereafter devoted his energies to the Church Army.

He was born in Brighton, England, and attended the Church Missionary College at Islington. He was ordained a deacon in 1892 and a priest in 1893 while serving as a missionary at Fort Chipewyan in the Northwest Territory. He was stationed at Fort Simpson from 1900 until 1913, serving as archdeacon of Mackenzie River in 1906 and as secretary-treasurer of the diocese in 1908. He was the author of a dictionary of the Slavi Indian language.

SOVIET HERO FLIER IN CRASH FATAL TO 4

M. S. Babushkin Killed When Plane Falls Into River on Return From Arctic

MOSCOW, May 19 (AP).—Tass (official Russian news agency) reported today that M. S. Babushkin, one of Russia's foremost fliers, and three other persons were killed Monday in an airplane crash on a flight from the Arctic region to the mainland of Soviet Russia.

Twelve other persons aboard the big four-engined plane were injured when it fell into a river near Archangel while en route from Franz Josef Land, where the Russians maintain an outpost in the polar basin.

The passengers presumably included some who passed the Winter on the islands, which served as a base for the fruitless search for Sigismund Levanevsky and five companions who disappeared on a flight from Moscow to the United States last Aug. 13.

Babushkin was among eleven Russian fliers who crossed the North Pole last May in carrying on a program of polar exploration by airplane. For that achievement he received the title of Hero of the Soviet Union.

Babushkin first sprang into prominence during the efforts to rescue General Umberto Nobile and the crew of the ill-fated dirigible Italia in July, 1928. He sailed on the Soviet ice-breaker Malygin in June from Archangel, and in July took off in a Junkers airplane to look for the survivors, but he had to alight on the water, was in extreme danger of having his plane smashed by icebergs, and was missing for several days.

Altogether he made fifteen flights in search of the Italians, was attacked by polar bears, and once he was lost for five days. In 1929, he took the first six-passenger plane out on the Moscow-Tashkent service, but the engine failed and he and two journalists narrowly escaped death in landing at Kzilorda.

In 1935, he searched the ice northeast of Spitsbergen for the fabled "Gilles Land," but concluded that it was an illusion. The following year he was acting chief of the Northern Sea Route Administration.

Dog Born on Byrd Trip Dies

YOUNG, Ariz., April 9 (UP).—Sky, famous Alaskan husky born at Little America during the Richard E. Byrd expedition in 1929, died yesterday. Sky was brought to America by one of Rear Admiral Byrd's pilots.